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FCC PART 15 SUBPART C TEST REPORT				
	FCC Part 15.247			
Report Reference No	CTL1407311851-WF			
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Date of issue:	Aug. 19, 2014			
Test Laboratory Name	Shenzhen CTL Testing Technology Co., Ltd.			
Address	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road,			
NY.	Nanshan District, Shenzhen, China 518055			
Applicant's name	CT UNITE COMMUNICATION TECHNOLOGY LTD			
Address	6C, Jiahao Commercial Building, Shennan Road North, Nanshan District, Shenzhen, China			
Test specification:				
Standard	FCC Part 15.247: Operation within the bands 902–928 MHz, 2400–			
	2483.5 MHz, and 5725–5850 MHz.			
TRF Originator	Shenzhen CTL Testing Technology Co., Ltd. Dated 2011-01			
Shenzhen CTL Testing Technology				
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placement and context.	esting to			
Test item description:	Wifi Module			
FCC ID	2ACWK7601			
Trade Mark	CT UNITE			
Model/Type reference	ZK-7601, ZK-5572, ZK-7603, ZK-7632, ZK-7662, ZK-8676,			
	ZK-8266			
Work frequency	802.11b/g/n(20MHz): 2412~2462MHz			
	802.11n(40MHz): 2422~2452			
Type of modulation:	802.11b DSSS, 802.11g/n: OFDM			
Data Rate	802.11b: 1/2/5.5/11 Mbps			
	802.11g: 6/9/12/18/24/36/48/54 Mbps			
	802.11n: up to 150 Mbps			
Antenna Gain	0.5dBi			
Result	Positive			

# **TEST REPORT**

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Test Report No. :	CTL1407311851-WF	Aug. 19, 2014 Date of issue		
Equipment under Test	: Wifi Module			
Model /Type	: ZK-7601			
Listed Modes	: ZK-5572, ZK-7603, ZK-7	632, ZK-7662, ZK-8676, ZK-8266		
Difference Description	Only the model's name is	s different		
Applicant	CT UNITE COMMUNICA	TION TECHNOLOGY LTD		
Address	: 6C, Jiahao Commercial E Nanshan District, Shenzh	Building, Shennan Road North, nen, China		
Manufacturer		CT UNITE COMMUNICATION TECHNOLOGY LTD		
Address	: 6C, Jiahao Commercial E Nanshan District, Shenzh	Building, Shennan Road North, nen, China		
enzh		e e		
<b>Test Result</b> according to the standards on page 4:		Positive		

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory. 'esti

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# 1. <u>TEST STANDARDS</u>

The tests were performed according to following standards:

FCC Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

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ANSI C63.10-2009: American National Standard for Testing Unlicensed Wireless Devices.

### ANSI C63.4-2003

KDB Publication No. 558074 D01 v03r01 Guidance on Measurements for Digital Transmission Systems



# 2. <u>SUMMARY</u>

# 2.1. General Remarks

Date of receipt of test sample	:	July 31, 2014
Testing commenced on	:	July 31, 2014
Testing concluded on	:	Aug. 18, 2014

# 2.2. Equipment Under Test

# Power supply system utilised

Power supply voltage	:	0	120V / 60 Hz	0	115V / 60Hz
	1	0	12 V DC	0	24 V DC
	1		Other (specified	in blank below	

DC 3.3V

# Description of the test mode

IEEE 802.11b/g/n(HT20): Thirteen channels are provided to the EUT, but only eleventh channels used for USA.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427		2462
5	2432		
6	2437	2400 M	CD'
7	2442		

### IEEE 802.11b/g/n(HT40):

	b/g/n(i i i +0).			
C	hannel	Frequency(MHz)	Channel	Frequency(MHz)
	3	2422	Ind 8	2447
	4	2427	9	2452
	5	2432		
	6	2437		
	7	2442		

# 2.3. Short description of the Equipment under Test (EUT)

A WIFI Module support Wi-Fi 802.11b/g/n. For more details, refer to the user's manual of the EUT. Serial number: Prototype

# 2.4. EUT operation mode

1. The EUT has been tested under normal operating condition.

2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed. Channel low (2412MHz), mid (2437MHz) and high (2462MHz) for IEEE 802.11b/g/n(HT20) and Channel low (2422MHz), mid (2437MHz) and high (2452MHz) for IEEE 802.11b/g/n(HT40) with highest data rate are chosen for full testing.

### 3. Test Mode:

Test Mode(TM)	Description	Remark
1	Transmitting	802.11 b
	_	2412MHz, 2437MHz, 2462MHz
2	Transmitting	802.11 g
	_	2412MHz, 2437MHz, 2462MHz
3	Transmitting	802.11 n HT20
	_	2412MHz, 2437MHz, 2462MHz
4	Transmitting	802.11 n HT40
	_	2422MHz, 2437MHz, 2452MHz

## 2.5. EUT configuration

### The following peripheral devices and interface cables were connected during the measurement:

- $\bigcirc$  supplied by the manufacturer
- supplied by the lab
- Notebook PC

Manufacturer : DELL

Model No.: PP18L

Gain: 0.5dBi

# 2.6. NOTE

Antenna

1. The EUT is an 802.11b/g/n WIFI Module, The functions of the EUT listed as below:

EUT	Test Standards	Reference Report
	FCC Part 15 Subpart C (Section15.247)	CTL1407311851-WF
ZK-7601	FCC Per 47 CFR 2.1091(b)	CTL1407311851-WM

### 2. The frequency bands used in this EUT are listed as follows:

2400-2483.5	5150-5350	5470-5725	5725-5850
O V V			_
21		02	—
		50	—
		G	—
	2400-2483.5 - - - - - - - - - - - - -		

3. The EUT incorporates a SISO function, Physically, the EUT provides two completed transmitter and two completed receivers.

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

# 2.7. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2ACWK7601 filing to comply with of the FCC Part 15.247 Rules.

## 2.8. Modifications

No modifications were implemented to meet testing criteria.

# 3. TEST ENVIRONMENT

### 3.1. Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd. Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

The sites are constructed in conformance with the requirements of ANSI C6230, ANSI C63.4 (2009) and CISPR Publication 22.

## 3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

## FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 970318, December 19, 2013.

## 3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:

Humidity:

30-60 %

15-35 ° C

Atmospheric pressure:

950-1050mbar

### 3.4. Configuration of Tested System

Conne	ection Diagram		
		EUT	A (1)
Signal	Cable Type	Signal cable Description Shielded, >5m	

# 3.5. Duty Cycle

Operated Mode for Worst Duty Cycle						
Operated normally mode for worst duty cycle						
Operated test m	node for worst duty	cycle				
Mode Duty Cycle (%) Duty Factor (dB)						
11b	100	0				
11g	11g 100 0					
11n HT20 100 0						
11n HT40	100	0				

## 3.6. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

izhen CTL Testing

Test	Range	Measurement Uncertainty	Notes	
Radiated Emission	30~1000MHz	4.10dB	(1)	
Radiated Emission	Above 1GHz	4.32dB	(1)	
Conducted Disturbance	0.15~30MHz	3.20dB	(1)	

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Technol

# 3.7. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2014/07/12	2015/07/11
EMI Test Receiver	R&S	ESCI	103710	2014/07/10	2015/07/09
Spectrum Analyzer	Agilent	E4407B	MY45108355	2014/07/06	2015/07/05
Controller	EM Electronics	Controller EM 1000	N/A	2014/07/06	2015/07/05
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2014/07/12	2015/07/11
Horn Antenna	SCHWARZBECK	BBHA9170	1562	2014/07/12	2015/07/11
Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-037	2014/07/12	2015/07/11
LISN	R&S	ENV216	101316	2014/07/10	2015/07/09
LISN	SCHWARZBECK	NSLK8127	8127687	2014/07/10	2015/07/09
Microwave Preamplifier	HP	8349B	3155A00882	2014/07/10	2015/07/09
Amplifier	HP	8447D	3113A07663	2014/07/10	2015/07/09
Transient Limiter	Com-Power	LIT-153	532226	2014/07/10	2015/07/09
Radio Communication Tester	R&S	CMU200	3655A03522	2014/07/06	2015/07/05
Temperature/Humidity Meter	zhicheng	ZC1-2	22522	2014/07/10	2015/07/09
SIGNAL GENERATOR	PO HP	8647A	3200A00852	2014/07/10	2015/07/09
Wideband Peak Power Meter and sensor	Anritsu	ML2495A; MA2491A	220.23.35	2014/ <mark>0</mark> 7/06	2015/07/05
Climate Chamber	ESPEC	EL-10KA	A20120523	2014/07/06	2015/07/05
High-Pass Filter	K&L	9SH10- 2700/X12750 -O/O	0	2014/07/06	2015/07/05
High-Pass Filter	K&L	41H10- 1375/U12750 -O/O	Techno	2014/07/06	2015/07/05
RF Cable	HUBER+SUHNER	RG214	1	2014/07/09	2015/07/08

# 3.8. Summary of Test Result

FCC PART 15		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Peak Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.109/ 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge Compliance of RF Emission	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS

Remark: The measurement uncertainty is not included in the test result.

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

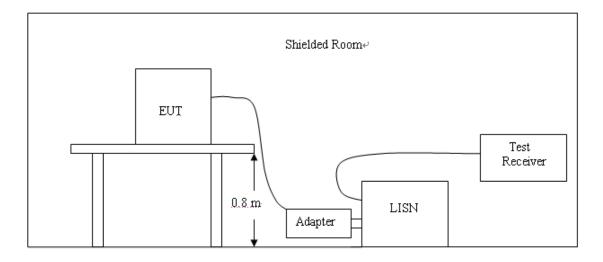
Test Items	Mode	Data Rate	Channel
AC Power Conducted Emission	Normal Link	11 Mbps	1
21	11b/DSSS	11 Mbps	1/6/11
Maximum Peak Conducted Output Power Power Spectral Density 6dB Bandwidth Spurious RF conducted emission	11g/OFDM	54 Mbps	<mark>1/6/11</mark>
	11n(20MHz)/OFDM	65Mbps	1/6/11
	11n(40MHz)/OFDM	150Mbps	3/6/9
3 34	11b/DSSS	11 Mbps	1/6/11
Radiated Emission 30MHz~1GHz	11g/OFDM	54 Mbps	1/6/11
	11n(20MHz)/OFDM	65Mbps	1/6/11
3	11n(40MHz)/OFDM	150Mbps	3/6/9
C	11b/DSSS	11 Mbps	1/6/11
	11g/OFDM	54 Mbps	1/6/11
Radiated Emission 1GHz~10th Harmonic	11n(20MHz)/OFDM	65Mbps	1/6/11
	11n(40MHz)/OFDM	150Mbps	3/6/9
	11b/DSSS	11 Mbps	1/11
	11g/OFDM	54 Mbps	1/11
Band Edge Compliance of RF Emission	11n(20MHz)/OFDM	65Mbps	1/11
	11n(40MHz)/OFDM	150Mbps	3/9

Note1: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

# 4. TEST CONDITIONS AND RESULTS

# 4.1. Conducted Emissions Test

### **TEST CONFIGURATION**



### TEST PROCEDURE

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following:

		STATISTICS STATISTICS			
Frequency		Maximum RF	Line Voltage	(dBµv)	
Frequency (MHz)	CLAS	SS A	CLASS B		
(11112)	Q.P.	Ave.	Q.P.	Ave.	
0.15 - <mark>0.5</mark> 0	79	66	66-56*	56-46*	
0.50 - 5.00	73	60	56	<b>4</b> 6	
5.00 - 30.0	73	60	60	50	

\* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

1. Please follow the guidelines in ANSI C63.4-2003.

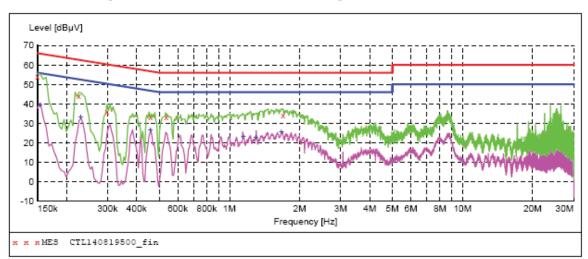
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.

- 3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 4. All the support units are connecting to the other LISN.
- 5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 7. Both sides of AC line were checked for maximum conducted interference.
- 8. The frequency range from 150 kHz to 30 MHz was searched.
- 9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### The RBW/VBW for 150KHz to 30MHz: 9KHz

### TEST RESULTS

SCAN TABLE: "Voltage (9K-30M)FIN" Short Description: 150K-30M Voltage



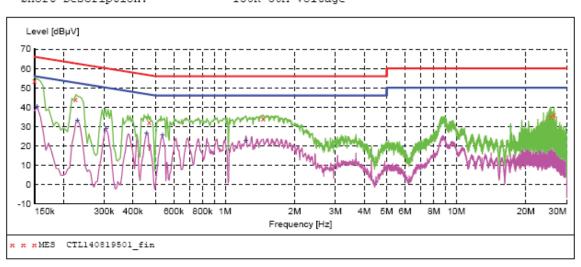
#### MEASUREMENT RESULT: "CTL140819500 fin"

8/19/2014 10	0:08AM						
Frequency		Transd	Limit	2	Detector	Line	PE
MHz	dBµV	dB	dBµV	dB			
0.150000	53.90	10.2	66	12.1	QP	L1	GND
0.226000	44.10	10.2	63	18.5	QP	L1	GND
0.298000	36.00	10.2	60	24.3	QP	L1	GND
0.458000	33.00	10.2	57	23.7	QP	L1	GND
0.536000	33.20	10.2	56	22.8	QP	L1	GND
1.700000	34.20	10.3	56	21.8	QP	L1	GND

#### MEASUREMENT RESULT: "CTL140819500 fin2"

8/19/2014 10:08AM Frequency Level Transd Limit Margin Detector Line PE MHz dBµV dB dBµV dB 0.154000 39.40 10.2 56 16.4 AV L1GND 10.2 19.1 AV 20.3 AV 0.230000 33.30 52 GND L10.458000 26.40 47 GND L11.148000 23.00 10.3 46 23.0 AV L1GND 10.3 23.2 AV 20.6 AV GND 1.298000 22.80 46 L1 1.670000 25.40 10.3 46 L1GND

SCAN TABLE: "Voltage (9K-30M)FIN" Short Description: 150K-30M Voltage



#### MEASUREMENT RESULT: "CTL140819501 fin"

8/19/2014 10:12AM Level Transd Limit Margin Detector Line PE Frequency dBµV dB MHz dBµV dB 12.2 QP 18.3 QP 0.150000 53.80 10.2 66 Ν GND 0.226000 10.2 GND 44.30 63 Ν 10.2 0.470000 32.00 57 24.5 QP Ν GND 10.3 1.460000 34.30 56 21.7 Ν GND QP 35.20 24.8 QP 25.628000 60 Ν GND 26.414000 35.90 11.2 60 24.1 QP Ν GND

MEASUREMENT RESULT: "CTL140819501 fin2"

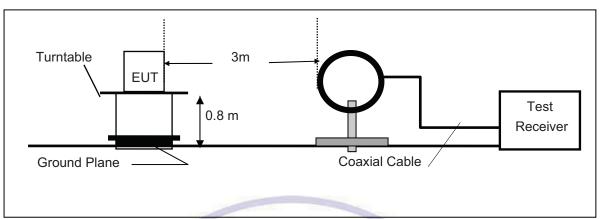
8/19/2014 10:12AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	40.10	10.2	56	15.7	AV	Ν	GND
0.230000	33.40	10.2	52	19.0	AV	N	GND
0.306000	29.10	10.2	50	21.0	AV	N	GND
0.458000	26.70	10.2	47	20.0	AV	Ν	GND
0.536000	25.50	10.2	46	20.5	AV	Ν	GND
1.232000	22.60	10.3	46	23.4	AV	Ν	GND

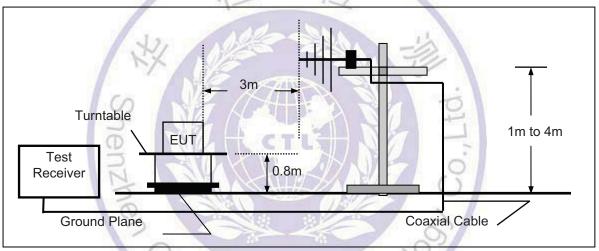
# 4.2. Radiated Emission Test

## TEST CONFIGURATION

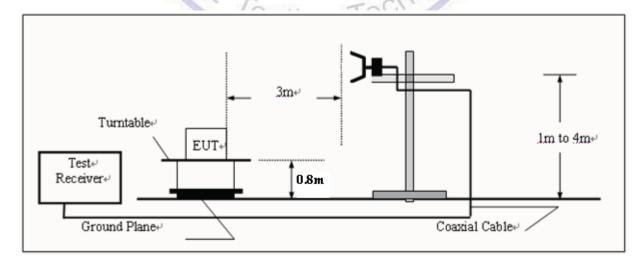
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



### FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

### FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

### TEST PROCEDURE

- 1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS), the EUT was setup according to ANSI C63.4: and tested according to ANSI C63.10 for compliance to FCC 47CFR 15.247 requirements.
- 2. The EUT was placed on a turn table which is 0.8m above ground plane.
- 3. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
- 4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 5. Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f >1 GHz, 120 kHz for f < 1 GHz; VBW ≧ RBW; Sweep = auto; Detector function = peak; Trace = max hold VBW=10Hz for f>1GHz AV
- 6. Repeat above procedures until all frequency measurements have been completed.

### Note:

When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the "cone of radiation" of EUT. The 3dB beamwidth is 60 degrees for H-plane and 90 degrees for E-plane.

CTLS

### LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
30-88	3	40.0	100
88-216	<sup>e</sup> stinc	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the100kHz bandwidth within the band that contains the highest level of desired power.

### TEST RESULTS

### 802.11b

CH		FIEDIELCV	Reading	Factor	Measure	Limit	Margin	Detector
		Frequency (MHz)	Level	(dB)	Level	(dBuV/m)	(dB)	Delector
		(101112)	(dBuV/m)	(ub)	(dBuV/m)	(abav/iii)	(uD)	
	V	2412.0	71.7	30.8	102.5	Fundamental	/	PK
	V	368.4	13.6	14.8	28.4	46	17.6	QP
	V	504.3	17.2	19.7	36.9	46	9.1	QP
	V	3201.0	49.2	-0.6	48.6	54(note3)	5.4	PK
1	V	4827.3	47.5	2.6	50.1	54(note3)	3.9	PK
	V	7238.8	50.1	8.1	58.2	74	15.8	PK
	V	7238.8	40.8	8.9	49.7	54	4.3	AV
	Н	24000.0	60.3	-8.9	51.4	54(note3)	2.6	PK
	V	2437.4	70.6	31.2	101.8	Fundamental	/	PK
	V	318.3	15.2	15.2	30.4	46	15.6	QP
	V	572.1	16.8	21.2	38	46	8.0	QP
	V	3200.0	45.9	-0.6	45.3	54(note3)	8.7	PK
6	V	4875.8	45.9	2.8	48.7	54(note3)	5.3	PK
	V	7317.4	53.5	8.8	62.3	74	11.7	PK
	V	7317.4	42.0	8.1	50.1	54	3.9	AV
	Н	24000.0	60.1	-8.9	51.2	54(note3)	2.8	PK
	V	2462.1	71.4	30.9	102.3	Fundamental	1	PK
	V	341.2	14.8	14.9	29.7	46	16.3	QP
	Н	522.1	15.2	21.2	36.4	46	9.6	QP
11	V	3200.0	41.5	-0.6	40.9	54(note3)	13.1	PK
11	V	4928.6	39.4	3.0	42.4	54(note3)	11.6	PK
	V	7384.2	51.4	8.9	60.3	74	13.7-	PK
	V	7384.2	38.9	8.9	47.8	54	6.2 -	AV
	Н	24000.0	59.8	-8.9	50.9	54(note3)	3.1	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed. Close Lase 15 reported.

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СН	Antenna	Frequency	Reading	Factor		Limit		Detector
		(MHz)	Level	(dB)	Level	(dBuV/m)	(dB)	
			(dBuV/m)		(dBuV/m)			
	V	2412.3	67.9	30.8	98.7	Fundamental	/	PK
	Н	341.7	14.3	14.8	29.1	46	16.9	QP
	V	544.0	17.5	19.7	37.2	46	8.8	QP
1	V	3202.1	47.7	-0.6	47.1	54(note3)	6.9	PK
'	V	4827.5	48.0	2.6	50.6	54(note3)	3.4	PK
	V	7239.0	52.1	8.1	60.2	74	13.8	PK
	V	7239.0	39.7	8.9	48.6	54	5.4	AV
	Н	24000.0	59.6	-8.9	50.7	54(note3)	3.3	PK
	V	2437.1	66.6	31.2	97.8	Fundamental	/	PK
	Н	341.6	12.9	15.2	28.1	46	17.9	QP
	V	585.1	15.2	21.2	36.4	46	9.6	QP
	V	3200.0	44.3	-0.6	43.7	54(note3)	10.3	PK
6	V	4872.4	46.3	2.8	49.1	54(note3)	4.9	PK
	V	7316.3	51.3	8.8	60.1	74	13.9	PK
	V	7316.3	42.2	8.1	50.3	54	3.7	AV
	Н	24000.0	60.2	-8.9	51.3	54(note3)	2.7	PK
	V	2462.5	67.8	30.9	98.7	Fundamental	1	PK
	Н	344.2	15.2	14.9	30.1	46	15.9	QP
	Н	452.1	13.5	21.2	34.7	46	11.3	QP
11	V			-0.6	42.1	54(note3)	11.9	N PK
	V	4952.0	42.7	3.0	45.7	54(note3)	8.3	PK
	V	7341.3	54.0	8.9	62.9	74	11.1	PK
	V	7341.3	41.5	8.9	50.4	54	3.6	AV
	Н	24000.0	60.0	-8.9	51.1	54(note3)	2.9	PK
Mata		Iro Loval - P	anding La					

Note: 1. Measure Level = Reading Level + Factor.

2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

	1n(20MF	Frequency	Reading	Factor	Measure	Limit	Margin	Detector
OIT	Antenna	(MHz)	Level	(dB)	Level	(dBuV/m)	(dB)	Delecior
		(11112)	(dBuV/m)	(uD)	(dBuV/m)	(abav/iii)	(ub)	
	V	2412.1	67.2	30.7	97.9	Fundamental	1	PK
	H	597.9	10.5	21.2	31.7	46	14.3	QP
	H	311.8	20.5	15.1	35.6	46	10.4	QP
1	V	3200.0	48.9	-0.6	48.3	54(note3)	5.7	PK
	V	4824.0	46.6	2.6	49.2	54(note3)	4.8	PK
	V	7235.9	52.6	8.9	61.5	54	12.5	PK
	V	7235.9	40.6	8.9	49.5	74	4.5	AV
	Н	24000.0	59.3	-8.9	50.4	54(note3)	3.6	PK
	V	2437.3	66.4	31.2	97.6	Fundamental	/	PK
	Н	561.6	9.5	21.2	30.7	46	15.3	QP
	Н	343.3	21.6	16.0	37.6	46	8.4	QP
	V	3200.0	42.8	-0.6	42.2	54(note3)	11.8	PK
6	V	4876.8	46.7	2.8	49.5	54(note3)	4.5	PK
	V	7305.4	51.0	8.8	59.8	74	14.2	PK
	V	7305.4	40.4	8.8	49.2	54	4.8	AV
	Н	24000.0	59.8	-8.9	50.9	54(note3)	3.1	PK
	V	2462.0	66.5	30.9	97.4	Fundamental	1	PK
	Н	325.7	13.7	14.7	28.4	46	17.6	QP
	Н	486.3	14.9	21.2	36.1	46	9.9	QP
	V	3200.0	44.1	-0.6	43.5	54(note3)	10.5	N PK
11	V	4925.1	44.9	3.0	47.9	54(note3)	6.1	PK
	V	7376.1	52.2	9.0	61.2	74	12.8	PK
	V	7376.1	41.9	9.0	50.9	54	3.1	AV
	Н	24000.0	59.6	-8.9	50.7	54(note3)	3.3	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11n(40MHz)

	Antenna	Frequency	Reading	Factor	Measure	Limit	Margin	Detector
	/ unconna	(MHz)	Level	(dB)	Level	(dBuV/m)	(dB)	Deteotor
		(11112)	(dBuV/m)		(dBuV/m)	(abav/iii)	(uD)	
	V	2422.6	64.3	31.8	96.1	Fundamental	/	PK
	Н	315.8	20.1	16.0	36.1	46	9.9	QP
	Н	573.2	16.9	21.2	38.1	46	7.9	QP
3	V	3200.0	46.0	-0.6	45.4	54(note3)	8.6	PK
3	V	4845.1	45.8	2.6	48.4	54(note3)	5.6	PK
	V	7292.3	51.3	8.8	60.1	74	13.9	PK
	V	7292.3	39.2	8.9	48.1	54	5.9	AV
	Н	24000.0	59.5	-8.9	50.6	54(note3)	3.4	PK
	V	2438.3	64.6	31.2	95.8	Fundamental	/	PK
	Н	299.3	17.0	14.8	31.8	46	14.2	QP
	Н	567.4	17.7	21.2	38.9	46	7.1	QP
6	V	3200.0	42.0	-0.6	41.4	54(note3)	12.6	PK
0	V	4874.0	46.3	2.8	49.1	54(note3)	4.9	PK
	V	7349.2	50.2	9.0	59.2	74	14.8	PK
	V	7349.2	41.1	9.0	50.1	54	3.9	AV
	Н	24000.0	60.0	-8.9	51.1	54(note3)	2.9	PK
	V	2453.6	65.0	30.9	95.9	Fundamental	1	PK
	Н	525.3	9.3	21.2	30.5	46	15.5	QP
	Н	H 289.3		14.8	37.8	46	8.2	QP
9	V	3200.0 👔	47.8	-0.6	47.2	54(note3)	6.8	N PK
9	V	4904.0	42.2	2.9	45.1	54(note3)	8.9	PK
	V	7349.4	51.2	9.0	60.2	74	13.8	PK
	V	7349.4	39.7	9.0	48.7	54	5.3	AV
	Н	24000.0	59.6	-8.9	50.7	54(note3)	3.3 +	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## 4.3. 6dB Bandwidth Measurement

### TEST CONFIGURATION



### TEST PROCEDURE

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).

2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.

3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.

4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

### LIMIT

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

### TEST RESULTS

Product	:	ZK-7601
Test Item	:	6dB Occupied Bandwidth
Test Mode	:0)	Mode 1: Transmit by 802.11b

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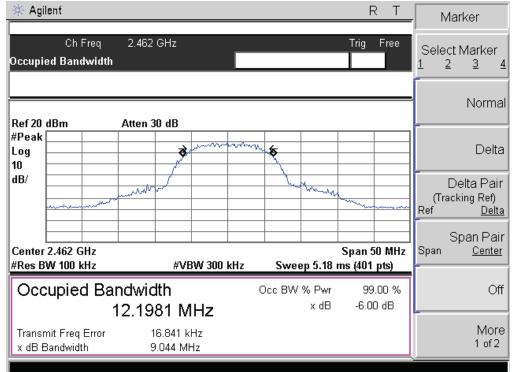
1A.

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	9029	500 0	Pass
06	2437	10170	500	Pass
11	2462	9044	500	Pass

# Channel 01 (2412MHz)

	ilent				RT	, Meas Setup
Occupi	Ch Fr ied Bandw		GHz		Trig Free	Avg Number 10 On <u>Off</u>
Ref 20	dBm	Atten 30	) dB			Avg Mode Exp Repeat
#Peak Log 10			****	mm <b>k</b>		Max Hold <u>On Off</u>
dB/				new	An and and and and and and and and and an	Occ BW % Pw 99.00 %
	2.412 GH		#VBW 300	kHz Sweep 5.18	Span 50 MHz ms (401 pts)	OBW Spar 50.000000 MHz
Oco	cupied	Bandwid	th 96 MHz	Occ BW % Pwr x dB	99.00 %	x dB -6.00 dB
	mit Freq Ei Bandwidth	rror -2	0.902 kHz 029 MHz			Optimize Ref Level
		NX /	N			-
* Ag		en 2,437.1		el 06 (2437MHz	RT	, Trace/View
	ilent Ch Fri ied Bandw			el 06 (2437MHz		Trace/View Trace 1 2 <u>3</u>
Occupi Ref 20	Ch Fri ied Bandw dBm		GHz	el 06 (2437MHz	RT	Trace
Occupi Ref 20 #Peak Log 10	Ch Fri ied Bandw dBm	vidth	GHz	el 06 (2437MHz	RT	Trace 1 <u>2 3</u>
Occupi Ref 20 #Peak Log	Ch Fri ied Bandw dBm	vidth	GHz D dB		R T	Trace 1 2 <u>3</u> Clear Write
Occupi Ref 20 #Peak Log 10 dB/	Ch Fra dBm dBm	vidth Atten 3	GHz D dB		R T	Trace 1 2 3 Clear Write Max Hold
Occupi Ref 20 #Peak Log 10 dB/ Centel #Res E	Ch Fra ied Bandw dBm	Atten 3	GHz D dB		R T	Trace 1 2 3 Clear Write Max Hold Min Hold

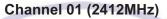
### Channel 11 (2462MHz)

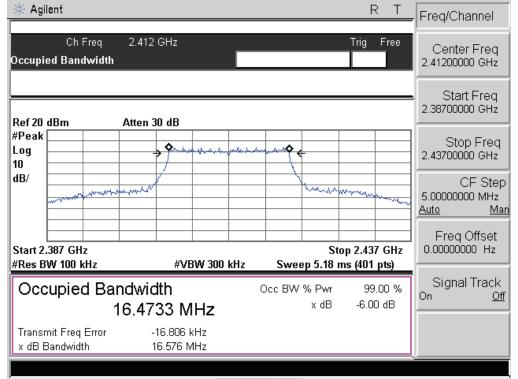




Product	:	ZK-7601
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency	Occupied Bandwidth	Limit	Result
	(MHz)	(kHz)	(kHz)	
01	2412	16576	500	Pass
06	2437	16510	500	Pass
11	2462	16594	500	Pass





#### ~1 06 (2/27MU-) Ch

	Chan	nel 06 (243/MHz)		
🔆 Agilent			RT	Freq/Channel
Ch Fr Occupied Bandv			Trig Free	Center Freq 2.43700000 GHz
Ref 20 dBm	Atten 30 dB			Start Freq 2.41200000 GHz
#Peak Log		wywłasta do an de a 🕈 🧲		Stop Freq 2.46200000 GHz
dB/	mangunador -	Martin	mathematical strength and and	CF Step 5.0000000 MHz <u>Auto Mar</u>
Center 2.437 GH #Res BW 100 kH	-		Span 50 MHz ns (401 pts)	Freq Offset 0.00000000 Hz
Occupied Transmit Freq E x dB Bandwidth	Bandwidth 16.4599 MHz rror 8.293 kHz 16.510 MHz	Occ BW % Pwr x dB	99.00 % -6.00 dB	Signal Track On <u>Off</u>
	Chan	nel 11 (2462MHz)	RT	Trace/View
Ch Fr Occupied Bandw			Trig Free	Trace 1 2 3
Ref 20 dBm	Atten 30 dB			Clear Write
#Peak Log 10				Max Hold
dB/	and the main of the second s		man man	Min Hold
Center 2.462 GH #Res BW 100 kH			Span 50 MHz ns (401 pts)	View
	Bandwidth	Occ BW % Pwr	99.00 %	Blank

x dB

16.5125 MHz

-2.749 kHz

16.594 MHz

Transmit Freq Error

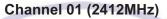
x dB Bandwidth

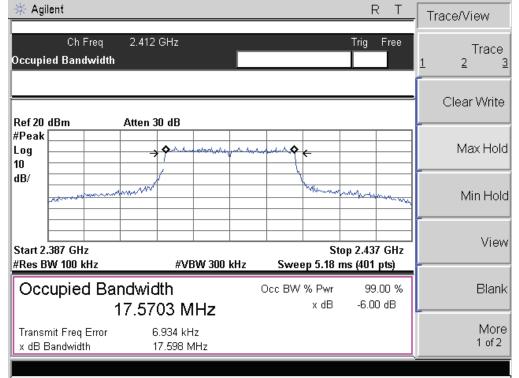
-6.00 dB

More 1 of 2

Product	•••	ZK-7601
Test Item	• •	6dB Occupied Bandwidth
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel No.	Frequency	Occupied Bandwidth	Limit	Result
	(MHz)	(kHz)	(kHz)	
01	2412	17598	500	Pass
06	2437	17512	500	Pass
11	2462	17632	500	Pass





## Channel 06 (2437MHz)

🔆 Ag	jilent		R T	- Span
Occup	Ch Freq ied Bandwidth	2.437 GHz	Trig Free	Span 50.000000 MHz
Ref 20	dBm	Atten 30 dB		Span Zoom
#Peak Log 10			here and a second se	Full Span
dB/	ware and the second sec		- Marin Marine	Zero Span
	r 2.437 GHz BW 100 kHz	#VBW 300 kHz	Span 50 MHz Sweep 5.18 ms (401 pts)	Last Span
Oc:	cupied Bar		Occ BW % Pwr 99.00 % x dB -6.00 dB	Zone •
	S	Channel	11 (2462MHz)	·Þ
🔆 Ag	jilent		RT	Trace/View
Occup	Ch Freq ied Bandwidth	2.462 GHz	Trig Free	Trace 1 2 3
D-620		A44-11 20 JD		Clear Write
Ref 20 #Peak Log 10		Atten 30 dB	ha di un di tata de la calendaria de la c	Max Hold

Occ BW % Pwr

#VBW 300 kHz

17.5701 MHz

7.965 kHz

17.632 MHz

man

Occupied Bandwidth

Center 2.462 GHz #Res BW 100 kHz

Transmit Freq Error

x dB Bandwidth

man

Sweep 5.18 ms (401 pts)

x dB

mound

Span 50 MHz

99.00 %

-6.00 dB

Min Hold

View

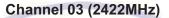
Blank

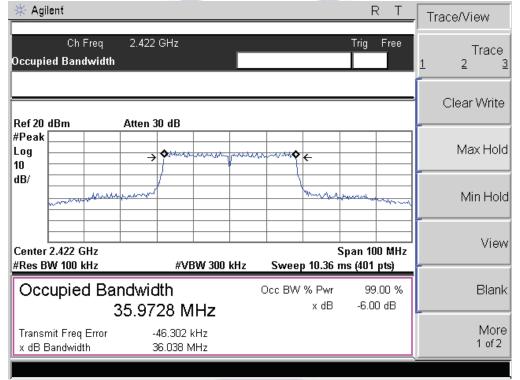
More

1 of 2

Product	:	ZK-7601
Test Item	• •	6dB Occupied Bandwidth
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel No.	Frequency	Occupied Bandwidth	Limit	Result
	(MHz)	(kHz)	(kHz)	
03	2422	36038	500	Pass
06	2437	35980	500	Pass
09	2452	35894	500	Pass





### Channel 06 (2437MHz)

🔆 Agilent						RT	_ TI	race/View
Ch Occupied Ban		2.437 GHz				Trig Free	1	Trace <u>2 3</u>
 Ref 20 dBm	A	tten 30 dB					-	Clear Write
#Peak Log 10		→ ¢ridi,~	www.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	÷			Max Hold
dB/	wash-w				mme			Min Hold
Center 2.437 ( #Res BW 100		#VE	3W 300 kHz	Swee		pan 100 MH 1s (401 pts)	z	View
Occupie		dwidth 5.9196 M	Hz	Occ BW	'% Pwr xdB	99.00 % -6.00 dB		Blank
Transmit Freq x dB Bandwid		-48.432 k 35.980 M						More 1 of 2
	K	1. 1. 6		7.2	14%	1 3	29	V

Channel 09 (2452MHz) 🔆 Agilent R Т Freq/Channel 2.452 GHz Ch Freq Trig Free Center Freq Occupied Bandwidth 2.45200000 GHz Start Freq 2.40200000 GHz Ref 20 dBm Atten 30 dB #Peak Stop Freq 2.5020000 GHz Log \$4mmmm ALLANDA HANNA -> Ł 10 dB/ CF Step monting 10.0000000 MHz <u>Man</u> <u>Auto</u> Freq Offset 0.00000000 Hz Center 2.452 GHz Span 100 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10.36 ms (401 pts) Signal Track Occupied Bandwidth Occ BW % Pwr 99.00 % On <u>Off</u> x dB -6.00 dB 35.8544 MHz -38.207 kHz Transmit Freq Error x dB Bandwidth 35.894 MHz

## 4.4. Maximum Peak Output Power

### **TEST CONFIGURATION**



### TEST PROCEDURE

According to C63.10 -2009 and KDB558074, The EUT was directly connected to the power meter / spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

N ON

Use the wideband power meter to test peak power and record the result.

### LIMIT

The Peak Output Power Measurement limits are 30dBm.

### TEST RESULTS

TEST RESULTS		H. ta
Product	:	ZK-7601
Test Item	•••	Power Output
Test Mode	:	Mode 1: Transmit by 802.11b

		A CONTRACTOR OF THE OWNER		
Channel No.	Frequency	Measurement Power Output	Limit	Result
	(MHz)	(dBm)	(dBm)	
1	2412	15.41	30.00	Pass
6	2437	15.28	30.00	Pass
11	2462	15.10	30.00	Pass

Product	ZK-7601	Ch		9
Test Item	Power C	Dutput	- del	1
Test Mode	Mode 2:	Transmit by 802.11g	Teu	

Channel No.	Frequency	Measurement Power Output	Limit	Result
	(MHz)	(dBm)	(dBm)	
1	2412	12.64	30.00	Pass
6	2437	12.57	30.00	Pass
11	2462	12.49	30.00	Pass

0

Report No.: CTL1407314851-WF

Product	:	ZK-7601
Test Item	:	Power Output
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency	Measurement Power Output	Limit	Result
	(MHz)	(dBm)	(dBm)	
1	2412	12.03	30.00	Pass
6	2437	11.92	30.00	Pass
11	2462	12.07	30.00	Pass

Product	:	ZK-7601		
Test Item	:	Power Output		
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)		
		the	太人	

		10331		
Channel No.	Frequency	Measurement Power Output	Limit	Result
	(MHz)	(dBm)	(dBm)	
3	2422	10.58	30.00	Pass
6	2437	10.41	30.00	Pass
9	2452	10.47	30.00	Pass

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### 4.5. Band Edge Measurement

### TEST CONFIGURATION

FUT	SPECTRUM
LUI	ANALYZER

### TEST PROCEDURE

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS) with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBM= 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW  $\geq$ 3 VBW to 100 kHz, to measure the conducted peak band edge.

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output. Configure the spectrum analyzer settings as described below (be sure to enter all losses between the unlicensed wireless device output and the spectrum analyzer).

- Span: Set Span for minimum 50 MHz - Reference Level: 110 dB µ V (corrected for gains and losses of test antenna factor, preamp gain and cable loss) - Attenuation: 10 dB

- Sweep Time: Coupled Resolution Bandwidth: Up to and including 1 GHz =  $\geq$  100 kHz
- Resolution Bandwidth: Above 1 GHz = 1 MHz Video Bandwidth: Below 1 GHz = 300 kHz
- Video Bandwidth: Up to and including 1 GHz =  $\geq$  3 MHz for peak and 10 Hz for average
- Detector: Peak

Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel.

### LIMIT

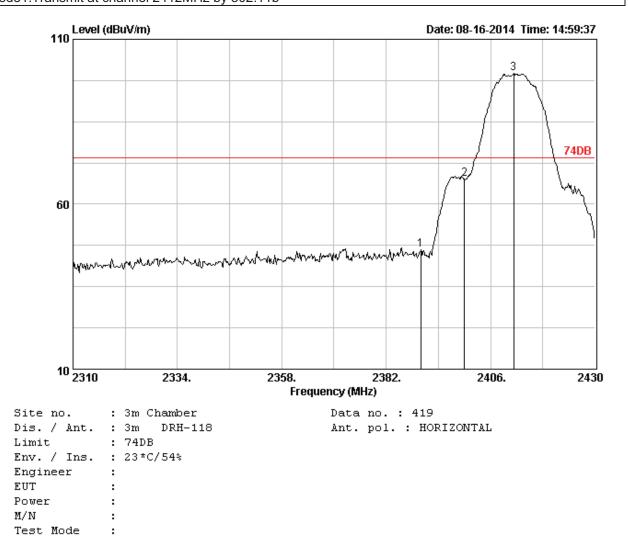
1. Below -20dB of the highest emission level in operating band.

2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209(see Section 15.205(c)).

Frequency (MHz)	Limit Average (dBuv/m)	Limit Peak (dBuv/m)
Below 2390 or Above 2483.5	54	74

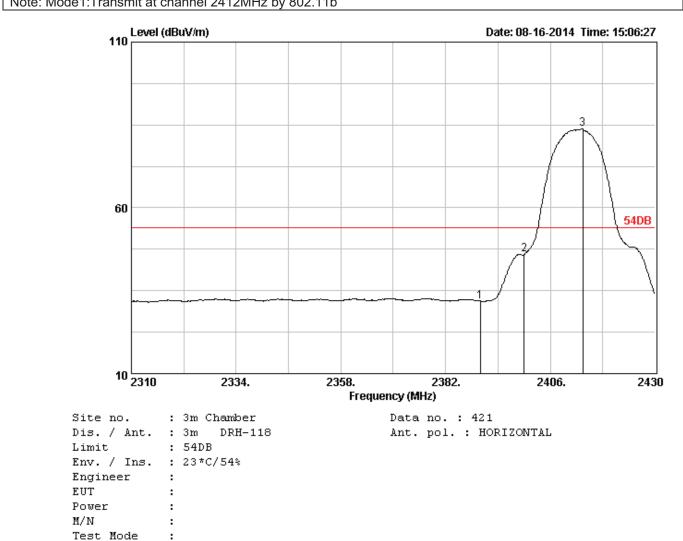
### TEST RESULTS

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b	



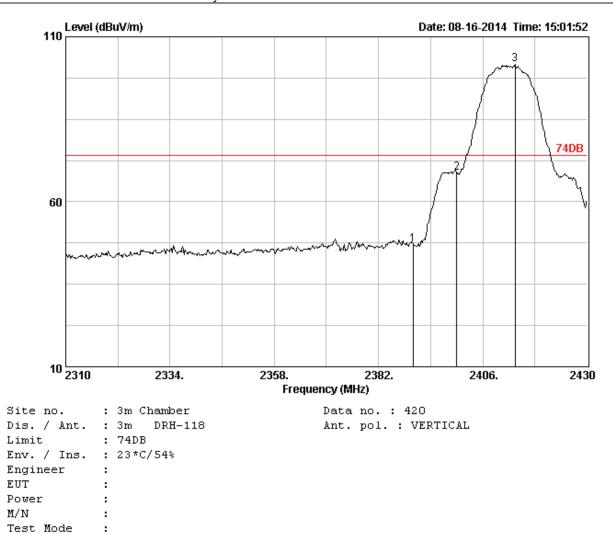
Fre (MH	•		Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
2 2400	).00 28.78 ).00 28.78 .28 28.81	4.61	69.52	46.31 67.55 99.69	74.00 74.00 74.00	27.69 6.45 -25.69	Peak Peak Peak Peak

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by	802 11b



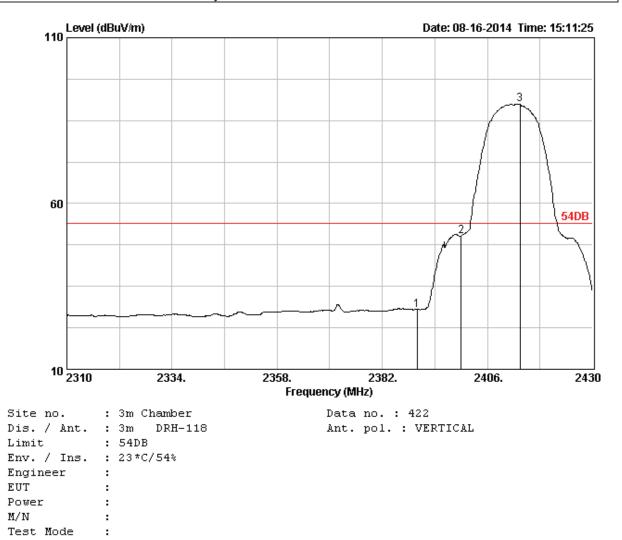
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)		Margin (dB)	Remark
1	2390.00	28.78	4.61	33.81	31.84	54.00	22.16	Average
2	2400.00	28.78	4.61	47.91	45.94	54.00	8.06	Average
3	2413.44	28.81	4.63	85.60	83.68	54.00	-29.68	Average

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b	



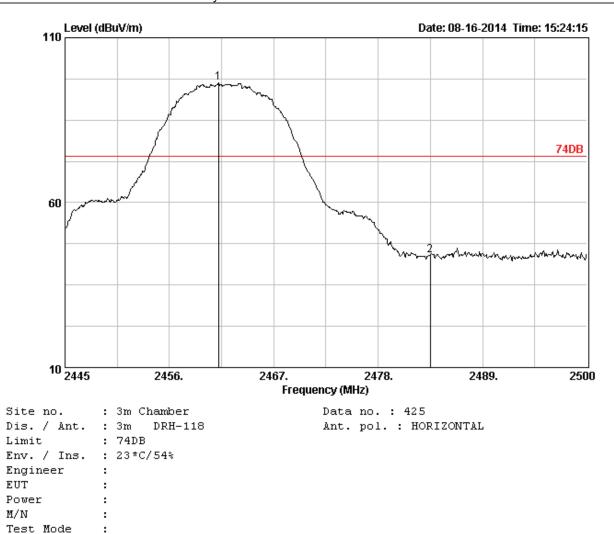
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
2	2390.00 2400.00 2413.44	28.78	4.61	48.93 70.79 103.60	46.96 68.82 101.68	74.00 74.00 74.00	27.04 5.18 -27.68	Peak Peak Peak Peak

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b	



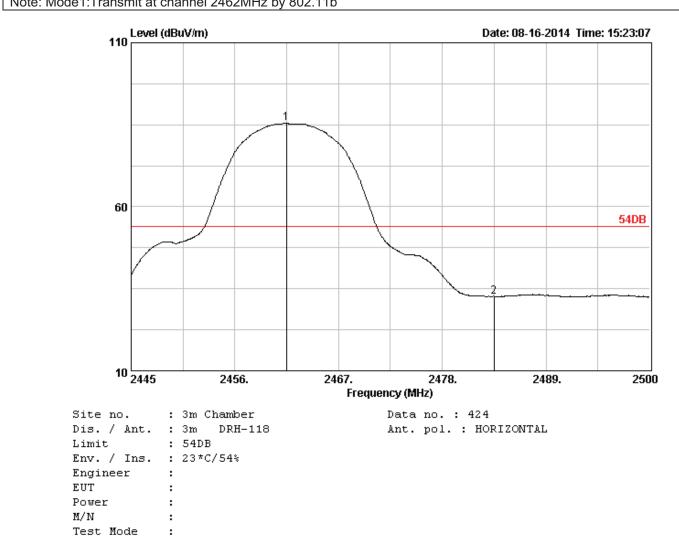
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
2	2390.00	28.78	4.61	29.90	27.93	54.00	26.07	Average
	2400.00	28.78	4.61	52.17	50.20	54.00	3.80	Average
	2413.44	28.81	4.63	91.92	90.00	54.00	-36.00	Average

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b	



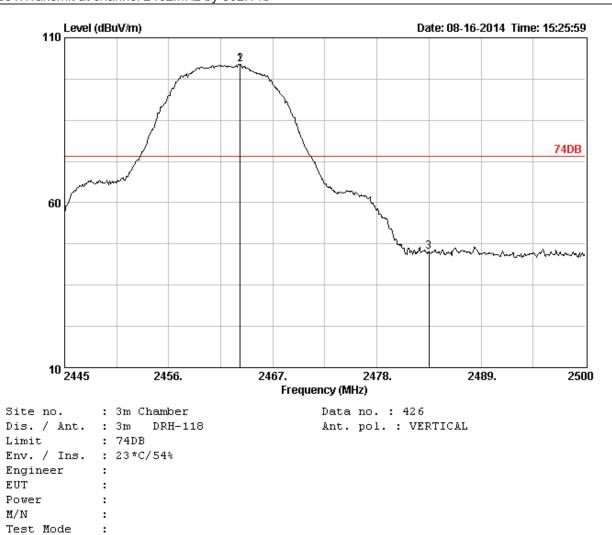
	Freq. (MHz)					Limits (dBuV/m)	-	Remark
1	2461.17	28.90	4.68	98.04	96.25	74.00	-22.25	Peak
2	2483.50	28.93	4.70	45.83	44.08	74.00	29.92	Peak

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802	11h



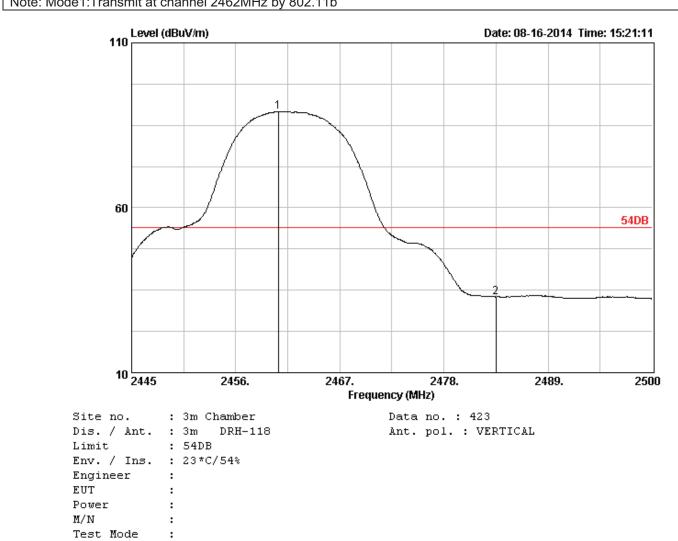
Freq. (MHz)		Reading		Limits (dBuV/m)	-	Remark
2461.45 2483.50			85.44 32.69		-31.44 21.31	Average Average

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 8	02.11b



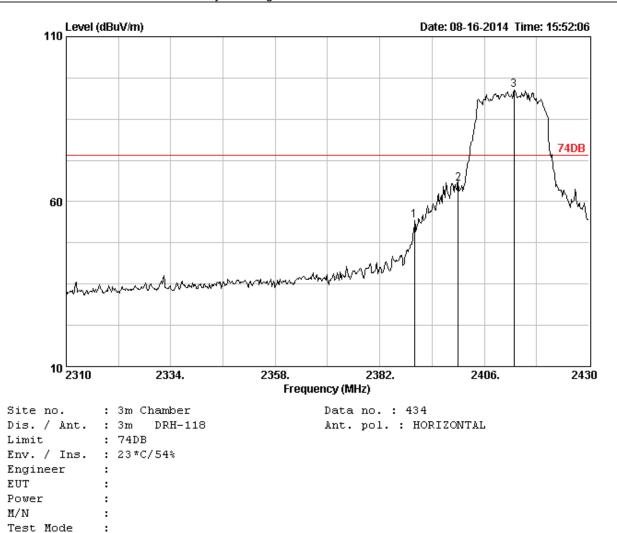
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1	2463.54	28.90	4.68	103.79	102.00	74.00	-28.00	Peak
3	2483.50	28.93	4.70	46.79	45.04	74.00	28.96	Peak

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by	802.11b



	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	-	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1 2	2460.51 2483.50		4.68 4.70	91.03 34.72	89.24 32.97		-35.24 21.03	Average Average

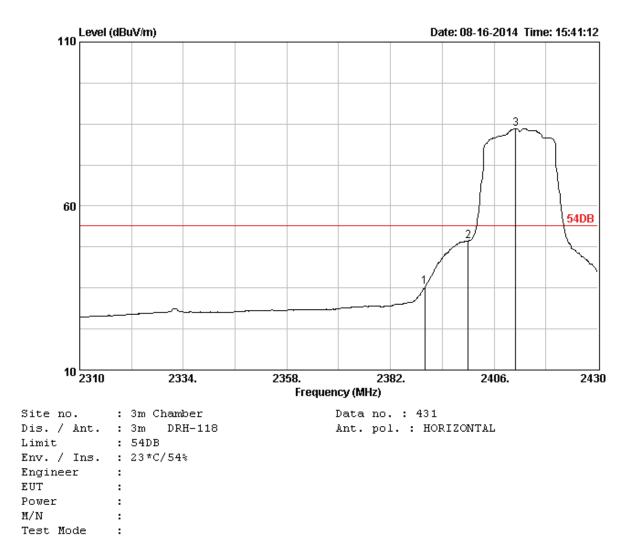
Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g	



Freq.	Ant. Factor			Emission Level	
/ 1617 V	4.405	4.4753	4-1DTT	1-170-177 ()	٨.

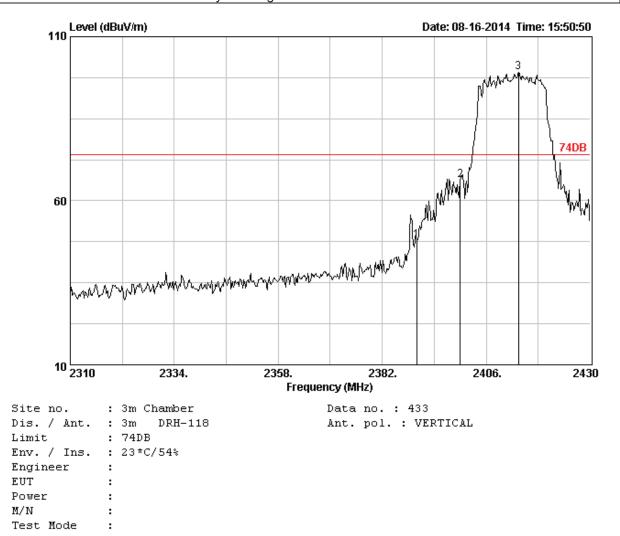
	Freq. (MHz)			Reading (dBuV)			-	Remark
1	2390.00	28.78	4.61	56.27	54.30	74.00	19.70	Peak
2	2400.00	28.78	4.61	67.36	65.39	74.00	8.61	Peak
3	2412.84	28.81	4.63	95.77	93.85	74.00	-19.85	Peak

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal			
EUT: ZK-7601	Power: AC 120V/60Hz			
Note: Mode2:Transmit at channel 2412MHz by 802.11g				



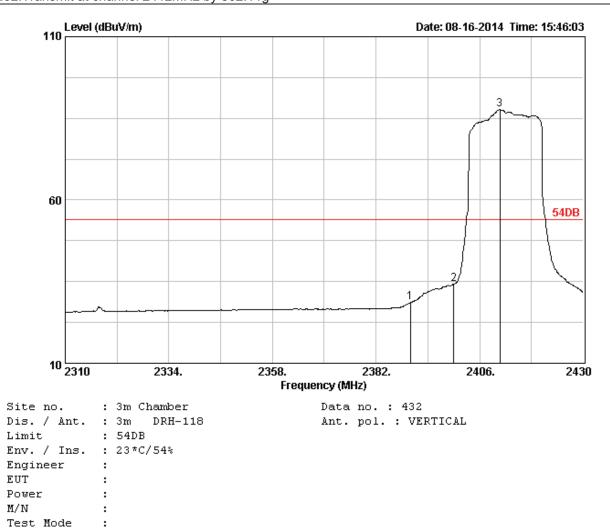
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1	2390.00	28.78	4.61	37.25	35.28	54.00	18.72	Average
2	2400.00	28.78	4.61	51.33	49.36	54.00	4.64	Average
3	2411.04	28.81	4.63	85.57	83.65	54.00	-29.65	Average

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g	



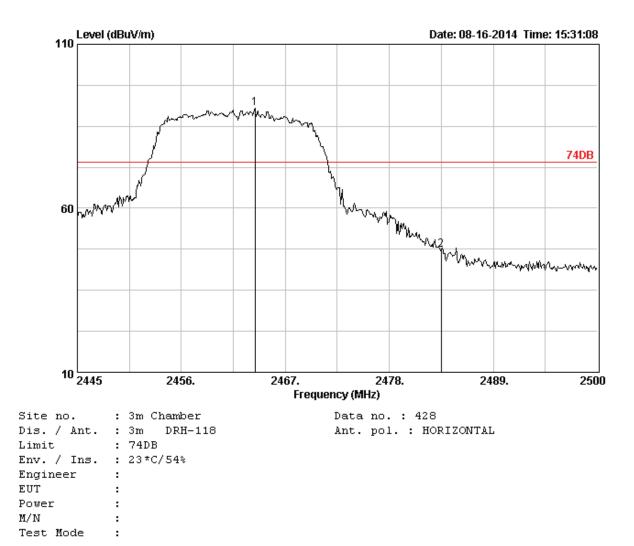
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1 2 3	2390.00 2400.00 2413.44	28.78	4.61	49.75 68.18 100.98	47.78 66.21 99.06	74.00 74.00 74.00	26.22 7.79 -25.06	Peak Peak Peak

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g	



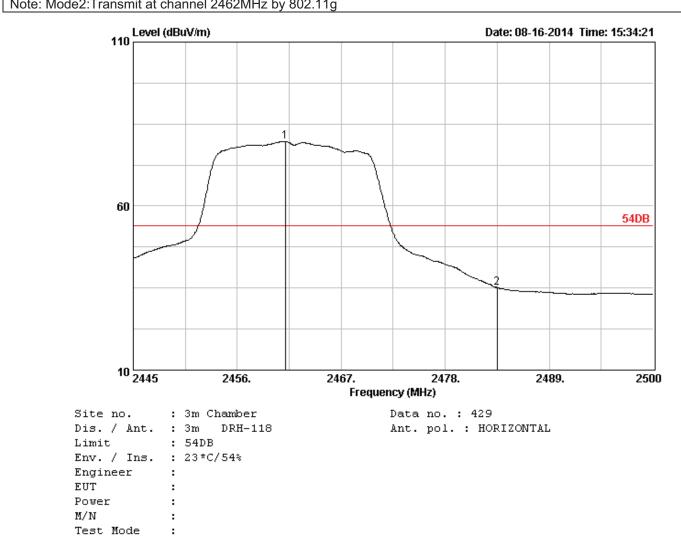
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	30.53	28.56	54.00	25.44	Average
2	2400.00	28.78	4.61	36.23	34.26	54.00	19.74	Average
3	2410.68	28.81	4.63	89.51	87.59	54.00	-33.59	Average

Engineer: Happy					
Site: AC5	Time: 2014/08/16				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal				
EUT: ZK-7601	Power: AC 120V/60Hz				
Note: Mode2:Transmit at channel 2462MHz by 802.11g					



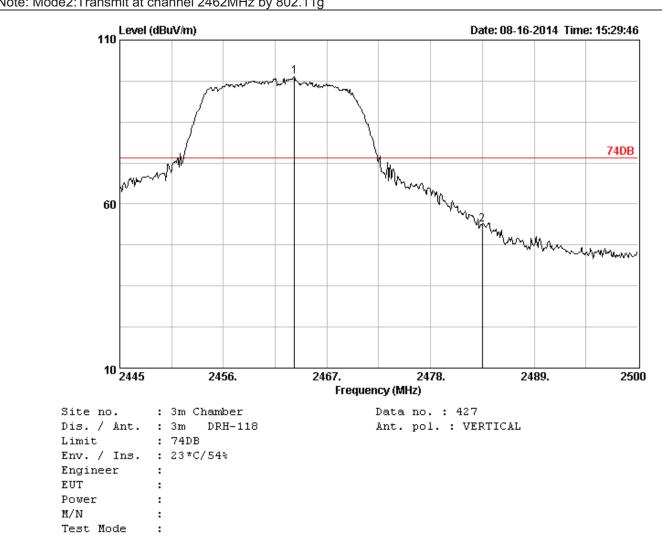
	Freq. (MHz)		Reading	Emission Level (dBuV/m)	Limits	-	Remark
1 2	2463.81 2483.50	 		90.61 47.32	74.00 74.00	-16.61 26.68	Peak Peak Peak

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2/62MHz by 8(	02 11a



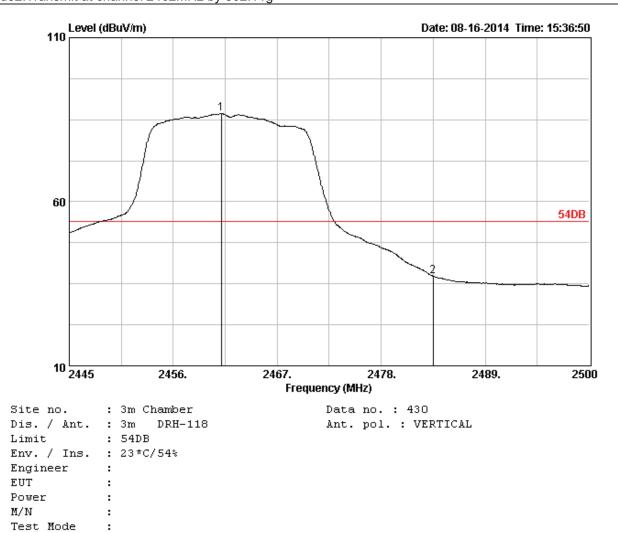
	Freq. (MHz)	Ant. Factor (dB)	Reading		Limits (dBuV/m)	-	Remark
1 2	2461.06 2483.50		 81.42 36.90	79.63 35.15		-25.63 18.85	Average Average

Engineer: Happy					
Site: AC5	Time: 2014/08/16				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical				
EUT: ZK-7601	Power: AC 120V/60Hz				
Note: Mode2:Transmit at channel 2462MHz by 802.11g					



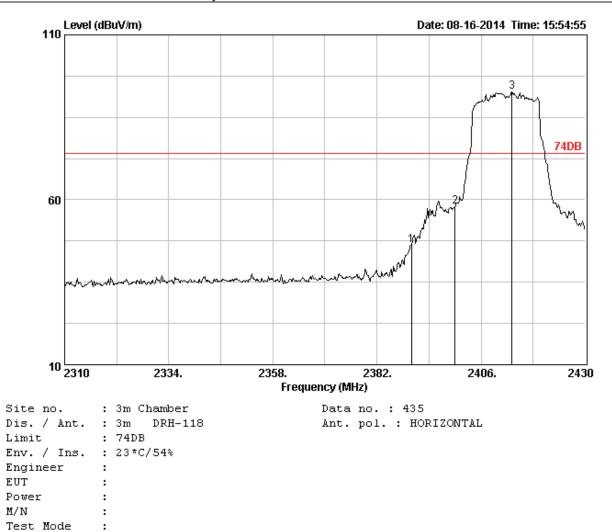
	Freq. (MHz)	Loss	Reading	Limits (dBuV/m)	-	Remark	
1 2	2463.54 2483.50	 		 	-24.79 20.24	Peak Peak	

Engineer: Happy	
Site: AC5	Time: 2014/08/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: ZK-7601	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by	802.11g



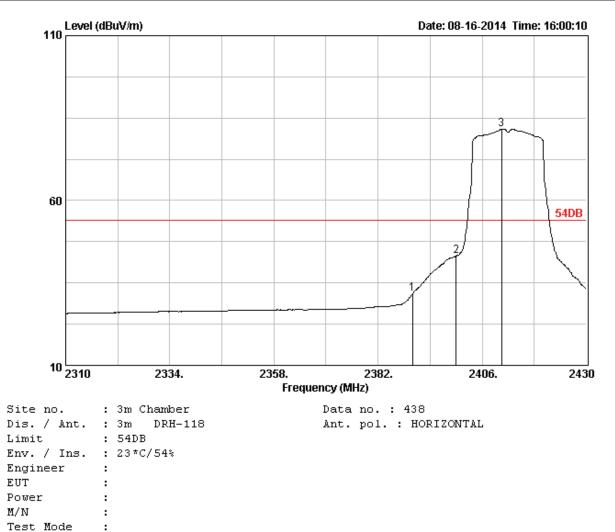
	Freq. (MHz)	Ant. Factor (dB)		-		Limits (dBuV/m)	-	Remark
1 2	2461.06 2483.50		4.68 4.70	88.60 39.06	86.81 37.31		-32.81 16.69	Average Average

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode3:Transmit at channel 2412MHz by 802.11n20MHz				



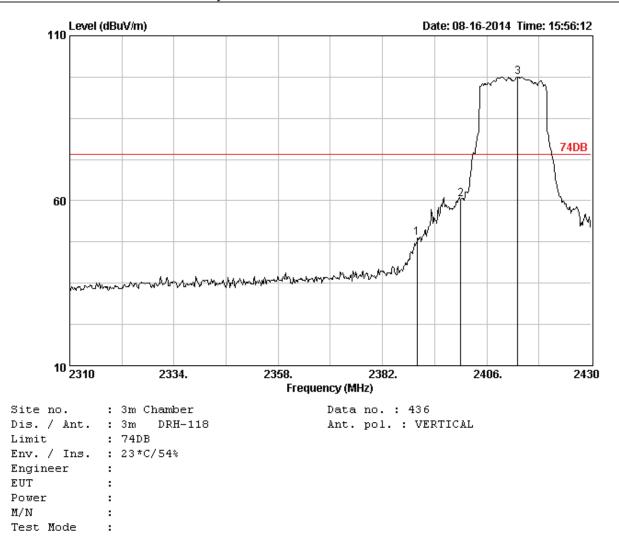
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	-	Remark
1	2390.00	28.78	4.61	48.28	46.31	74.00	27.69	Peak
2	2400.00		4.61	59.81	57.84	74.00	16.16	Peak
3	2413.08		4.63	94.70	92.78	74.00	-18.78	Peak

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode3:Transmit at channel 2412MHz by 802.11n20MHz				



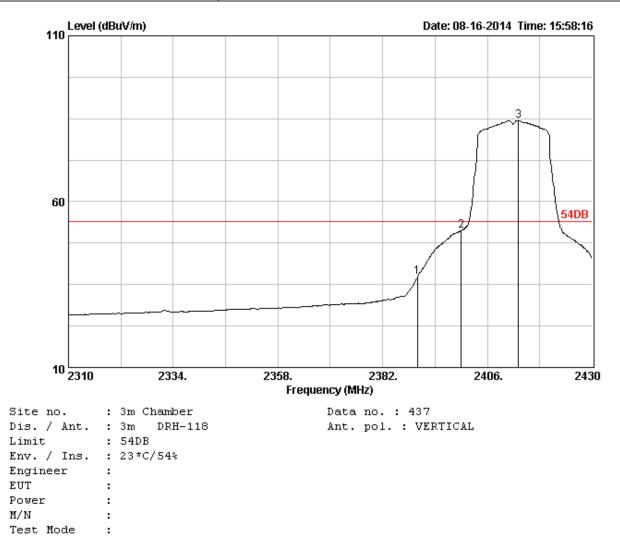
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark	
1	2390.00	28.78	4.61	33.79	31.82	54.00	22.18	Average	
2	2400.00	28.78	4.61	45.23	43.26	54.00	10.74	Average	
3	2410.44	28.81	4.63	83.61	81.69	54.00	-27.69	Average	

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode3:Transmit at channel 2412MHz by 802.11n20MHz				



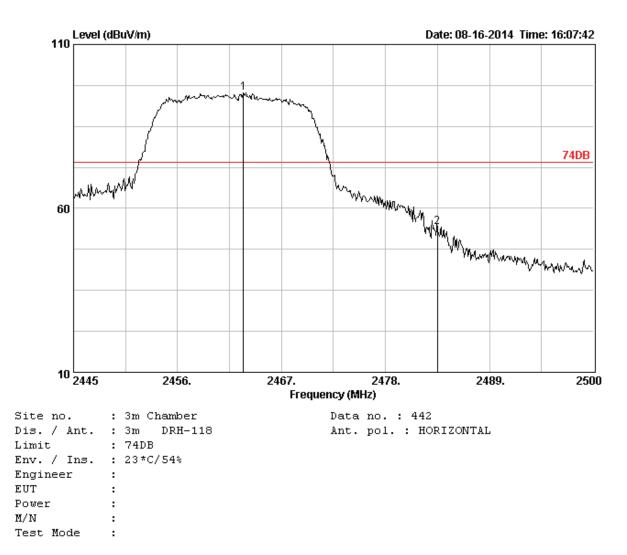
		Ant.	Cable		Emission	L		
	Freq. (MHz)	Factor (dB)	Loss (dB)	-		Limits (dBuV/m)	-	Remark
	2390.00	 28 78	4.61	50.63	48.66	74.00	25.34	Peak
T	2390.00	20.70	4.01	30.03	40.00	74.00	20.04	reak
2	2400.00	28.78	4.61	62.53	60.56	74.00	13.44	Peak
3	2413.08	28.81	4.63	99.44	97.52	74.00	-23.52	Peak

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode3:Transmit at channel 2412MHz by 802.11n20MHz				



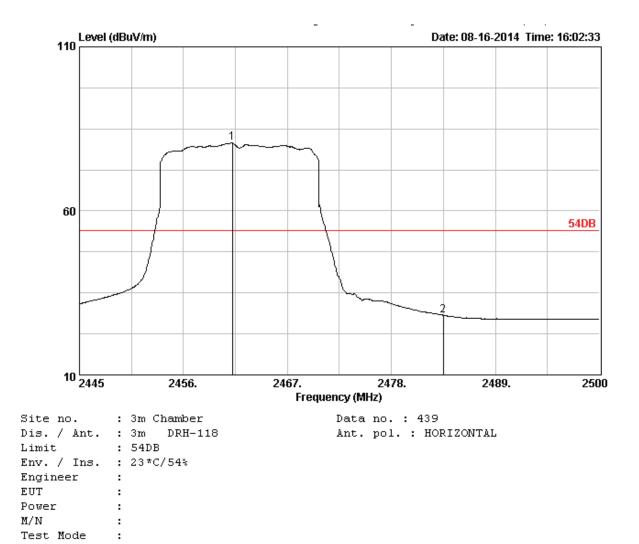
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)			Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	39.37	37.40	54.00	16.60	Average
2	2400.00	28.78	4.61	53.33	51.36	54.00	2.64	Average
3	2413.08	28.81	4.63	86.31	84.39	54.00	-30.39	Average

Engineer: Happy					
Site: AC5	Time: 2014/08/16				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal				
EUT: ZK-7601 Power: AC 120V/60Hz					
Note: Mode3:Transmit at channel 2462MHz by 802.11n20MHz					



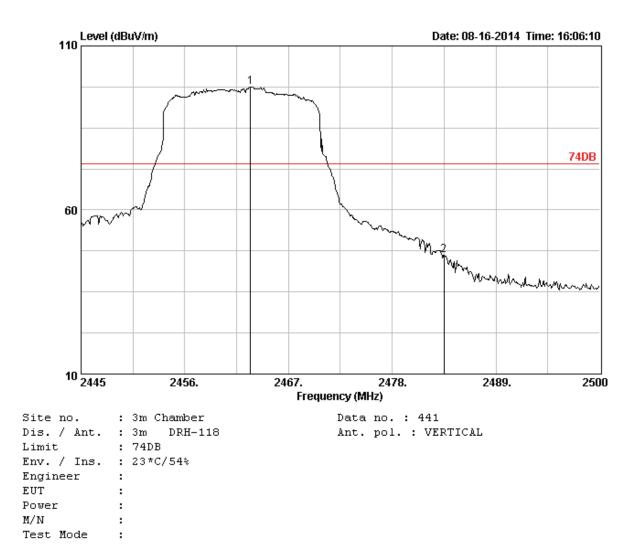
	Freq. (MHz)	Factor	Reading	Limits (dBuV/m)	-	Remark
_	2462.99 2483.50		 97.13 56.09	 74.00 74.00		Peak Peak Peak

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal			
EUT: ZK-7601	Power: AC 120V/60Hz			
Note: Mode3:Transmit at channel 2462MHz by 802.11n20MHz				



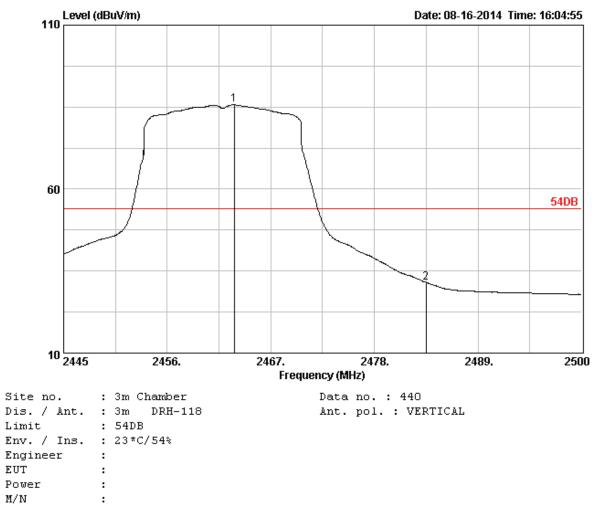
	Freq. (MHz)	Ant. Factor (dB)	Reading	Limits (dBuV/m)	-	Remark
1 2	2461.17 2483.50			54.00 54.00		Average Average

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode3:Transmit at channel 2462MHz by 802.11n20MHz				



	Freq. (MHz)	Factor	Reading	Limits (dBuV/m)	-	Remark	
_	2462.99 2483.50		 99.39 47.84	 74.00 74.00		Peak Peak Peak	

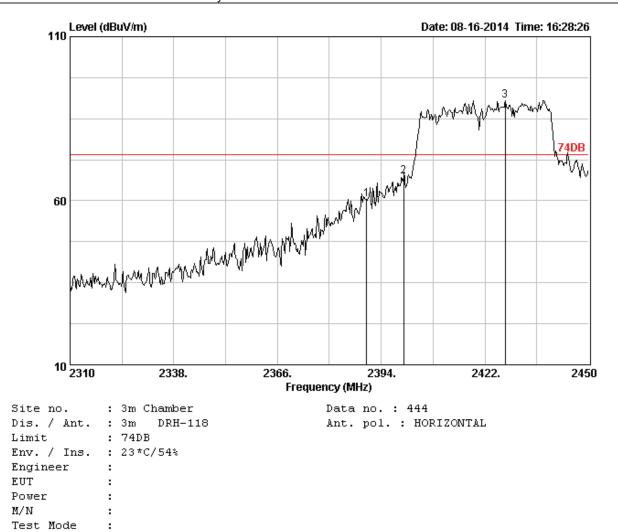
Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode3:Transmit at channel 2462MHz by 802.11n20MHz				



M/N : Test Mode :

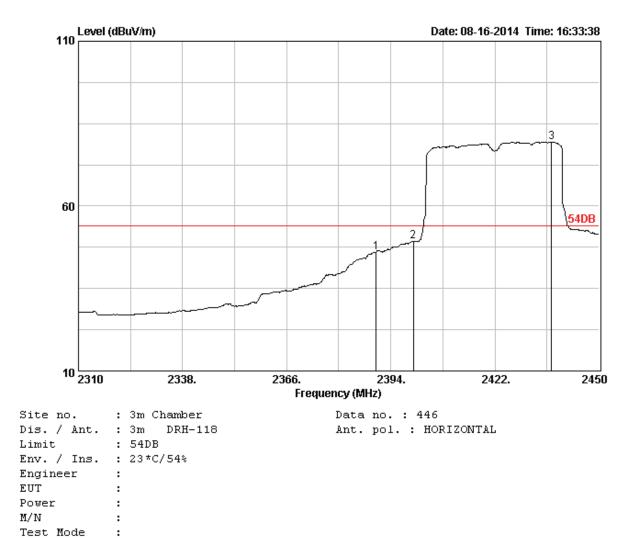
	Freq. (MHz)	Ant. Factor (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1 2	2463.10 2483.50		 	85.68 31.58		-31.68 22.42	Average Average

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode4:Transmit at channel 2422MHz by 802.11n40MHz				



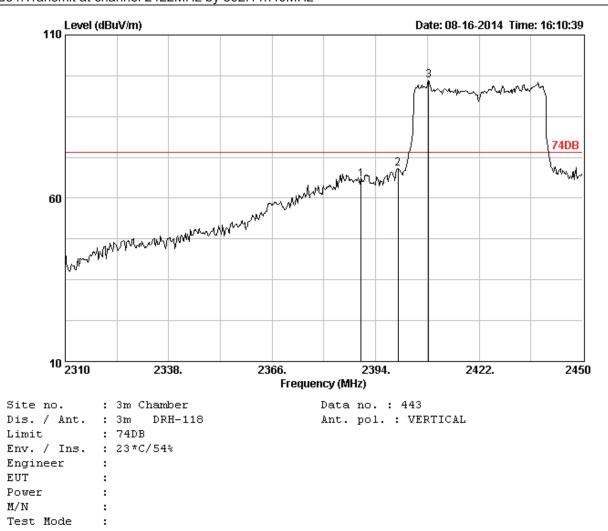
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1 2 3	2390.00 2400.00 2427.46	28.78	4.61	62.27 69.25 92.51	60.30 67.28 90.63	74.00 74.00 74.00	13.70 6.72 -16.63	Peak Peak Peak Peak

Engineer: Happy					
Site: AC5	Time: 2014/08/16				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal				
EUT: ZK-7601 Power: AC 120V/60Hz					
Note: Mode4:Transmit at channel 2422MHz by 802.11n40MHz					



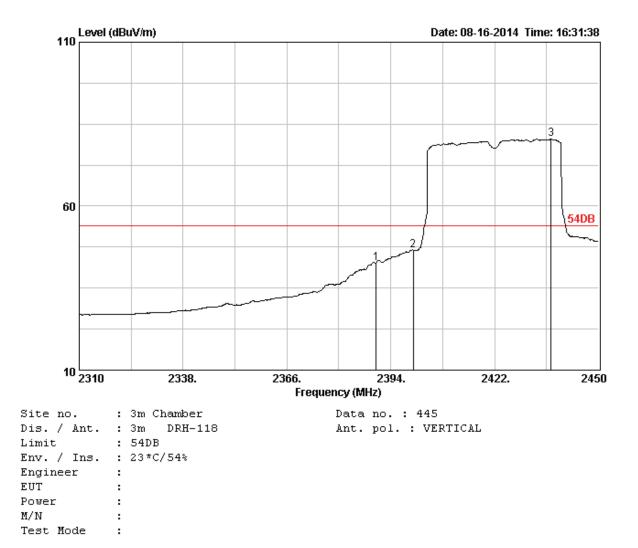
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	-	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1 2	2390.00 2400.00	28.78 28.78	4.61 4.61	47.86 51.20	45.89 49.23	54.00 54.00	8.11 4.77	Average Average
3	2437.26		4.66	81.33	79.49		-25.49	Average

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical			
EUT: ZK-7601	Power: AC 120V/60Hz			
Note: Mode4:Transmit at channel 2422MHz by 802.11n40MHz				



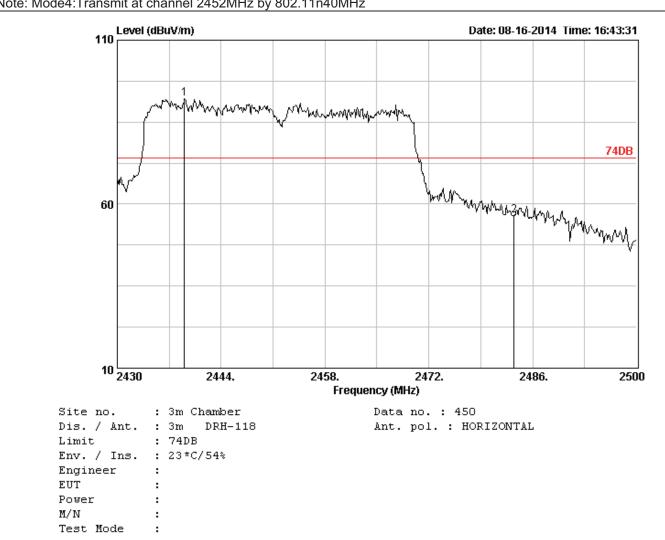
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
2	2390.00 2400.00 2408.28	28.78	4.61 4.61 4.63	67.60 70.95 97.94	65.63 68.98 96.02	74.00 74.00 74.00	8.37 5.02 -22.02	Peak Peak Peak

Engineer: Happy					
Site: AC5	Time: 2014/08/16				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical				
EUT: ZK-7601 Power: AC 120V/60Hz					
Note: Mode4:Transmit at channel 2422MHz by 802.11n40MHz					



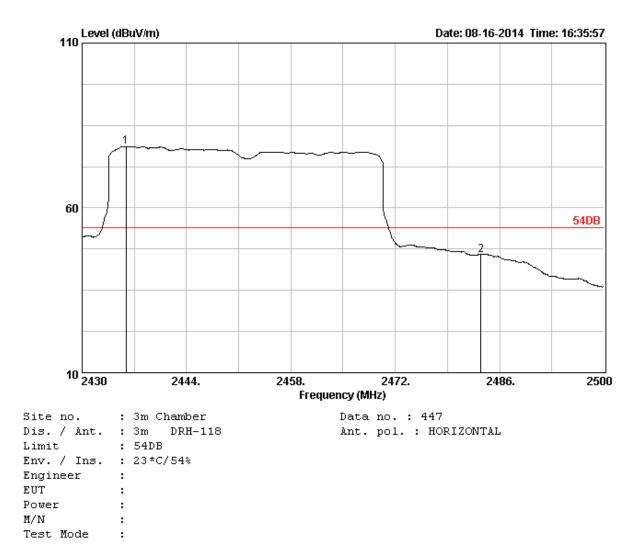
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)			Margin (dB)	Remark
1 2 3	2390.00 2400.00 2437.26	28.78 28.78 28.87 28.87	4.61 4.61 4.66	44.59 48.57 82.22	42.62 46.60 80.38	54.00 54.00 54.00	11.38 7.40 -26.38	Average Average Average Average

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal			
EUT: ZK-7601 Power: AC 120V/60Hz				
Note: Mode4:Transmit at channel 2452MHz by 802.11n40MHz				



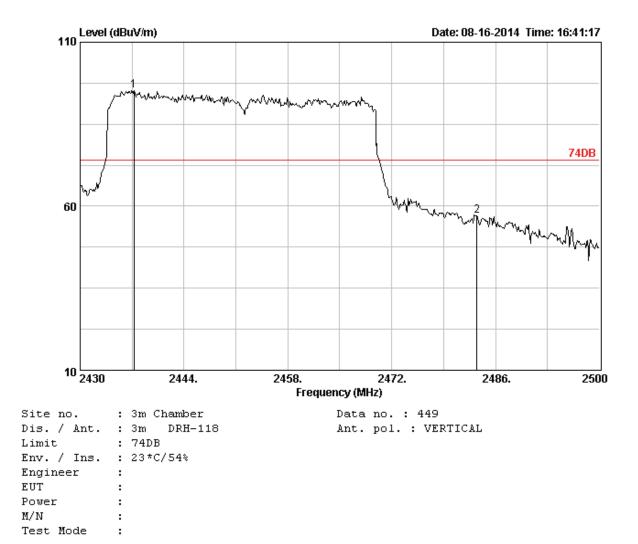
	Freq. (MHz)	Factor	Reading		Limits (dBuV/m)	-	Remark
1 2	2439.03 2483.50		 94.00 58.25	92.16 56.50		-18.16 17.50	Peak Peak

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal			
EUT: ZK-7601	Power: AC 120V/60Hz			
Note: Mode4:Transmit at channel 2452MHz by 802.11n40MHz				



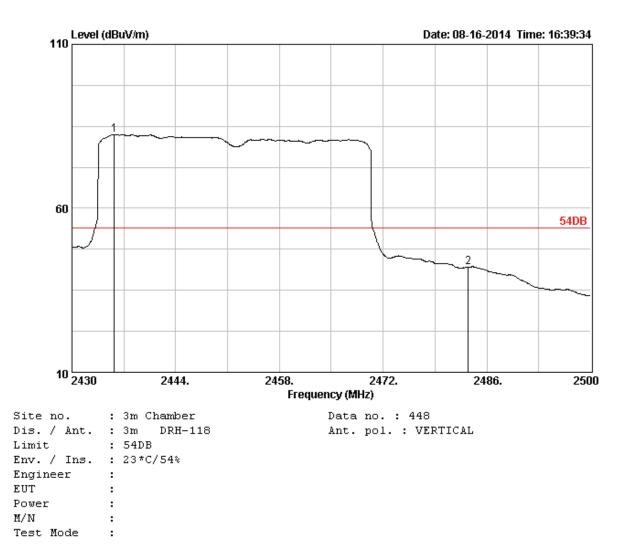
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading	Emission Level (dBuV/m)	Limits	Margin (dB)	Remark
1 2	2435.88 2483.50			80.55 47.54	78.66 45.79	54.00 54.00		Average Average

Engineer: Happy				
Site: AC5	Time: 2014/08/16			
Limit: FCC_Part15.209_RE(3m)	Margin: 0			
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical			
EUT: ZK-7601	Power: AC 120V/60Hz			
Note: Mode4:Transmit at channel 2452MHz by 802.11n40MHz				



Freq. (MHz)	Factor	Reading	Limits (dBuV/m)	-	Remark
2437.28 2483.50			74.00 74.00		Peak Peak Peak

Engineer: Happy					
Site: AC5	Time: 2014/08/16				
Limit: FCC_Part15.209_RE(3m)	Margin: 0				
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical				
EUT: ZK-7601	Power: AC 120V/60Hz				
Note: Mode4:Transmit at channel 2452MHz by 802.11n40MHz					



	Freq. (MHz)		Reading		Limits (dBuV/m)	-	Remark
1 2	2435.74 2483.50	 		82.52 41.98		-28.52 12.02	Average Average

### 4.6. Power Spectral Density Measurement

### **TEST CONFIGURATION**

	1	
EUT		SPECTRUM ANALYZER

#### **TEST PROCEDURE**

The EUT was tested according to KDB558074 D01 v03r01 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, VBW  $\geq$  10KHz, SPAN to 1.5 times greater than the EBW,.

### <u>LIMIT</u>

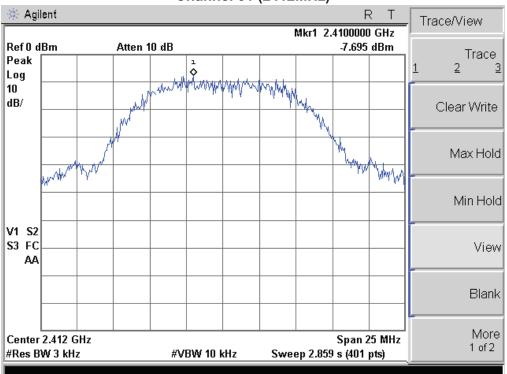
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### TEST RESULTS

Product	: ZK-7601
Test Item	: Power Spectral Density
Test Mode	: Mode 1: Transmit by 802.11b

Testing Technolo

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result	
01	2412	-7.659	8	Pass	
06	2437	-7.112	8	Pass	
11	2462	-7.622	8	Pass	

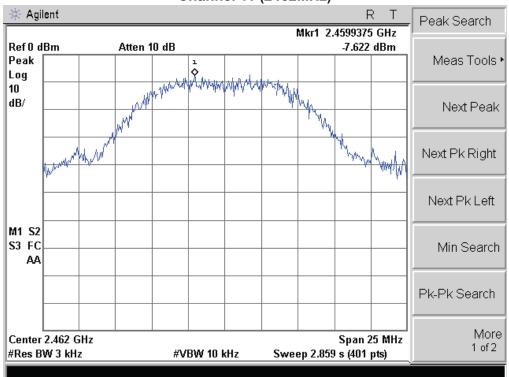


Channel 01 (2412MHz)

🔆 Agi	lent						R		Peak Search
Ref 0 d	IBm	Atten 10 dB			I	Mkr1 2.	4387500 -7.112		
Peak Log		ha	had down a		uk ten.				Meas Tools
10 dB/		Mar Mark	IN LOUIN NAME	kalindi zudi	1° VINGHA	WAN The			Next Peak
	www.	*				.,,	May	WWAN	Next Pk Right
	W								Next Pk Left
M1 S2 S3 FC AA									Min Search
									Pk-Pk Search
	2.437 GHz	<u> </u>	/BW 10 F	dHz	Swee	an 2 850	Span 2 9 s (401 p		More 1 of 2

1

RX NOA

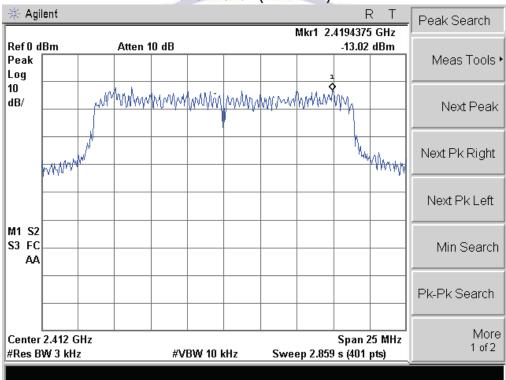






Product	:	ZK-7601
Test Item	:	Power Spectral Density
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
01	2412	-13.02	8	Pass
06	2437	-11.89	8	Pass
11	2462	-12.24	8	Pass



## Channel 01 (2412MHz)

				C	IIaIIII	eruo	(2437	IVINZ)			
🔆 Agi	ilent									Т	Peak Search
Ref0d Peak Log	IBm		Atten 1	0 dB	1			Mkr1 2.	4345625 GF -11.89 dBi		Meas Tools •
10 dB/		M	WWW	WMM/	him	μνΜγρ	wprud	www	WAY -		Next Peak
	proper 14	Ň							Mary	۳ <del>۳</del> W	Next Pk Right
											Next Pk Left
M1 S2 S3 FC AA	;									_	Min Search
											Pk-Pk Search
	2.437 G W 3 kH;			#V	BW 10 I	kHz	Swe	ep 2.859	Span 25 M I s (401 pts)		More 1 of 2

Channel 06 (2437MHz)

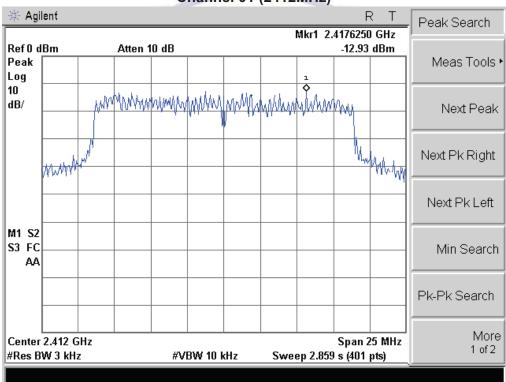
Channel 11 (2462MHz)

-

🔆 Agi	lent								RT	Peak Search
	D		A	0.10			I	Mkr1 2.	4670000 GHz	
Ref0d Peak Log	Bm		Atten 1	UdB			-		-12.24 dBm	Meas Tools •
10 18/		M	MMM	WM	Apalhon (	ANNA	unphyph	hrum	Wy	Next Peak
	NYMAN	N							Marrian	Next Pk Right
										Next Pk Left
N1 S2 53 FC AA										- Min Search
										Pk-Pk Search
	2.462 GI W 3 kHz			#V	BW 10 I	cHz	Swee	ep 2.859	Span 25 MHz s (401 pts)	More 1 of 2

Product	:	ZK-7601						
Test Item	:	Power Spectral Density						
Test Mode : Mode 3: Transmit by 802.11n (20MHz)								

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
01	2412	-12.93	8	Pass
06	2437	-12.84	8	Pass
11	2462	-12.04	8	Pass



### Channel 01 (2412MHz)

# Page 70 of 91

🔆 Agil	lent								F	<u>२                                    </u>	Peak Search
D (0.1	ID ID			0 10			I	Mkr1 2.			
Ref0d Peak Log			Atten 1	UdB	<b>1</b>				-12.84	dBm	Meas Tools •
10 dB/		M	mahaa	MMM.	MM4M	MAA	MMM	www	My		Next Peak
	ANNON	M							M	enter the	Next Pk Right
											Next Pk Left
M1 S2 S3 FC AA											Min Search
											Pk-Pk Search
Center #Res B	2.437 G W 3 kH			#V	BW 10 I	kHz	Swei	ep 2.859	-	25 MHz pts)	More 1 of 2

# Channel 06 (2437MHz)

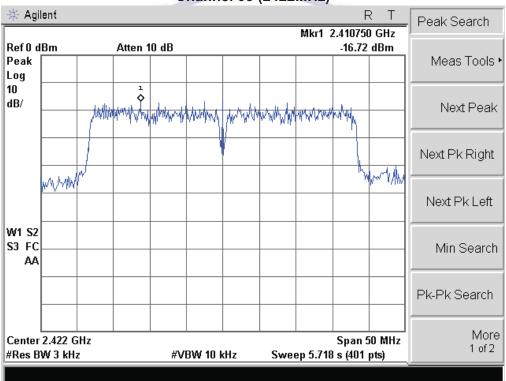
Channel 11 (2462MHz)

12

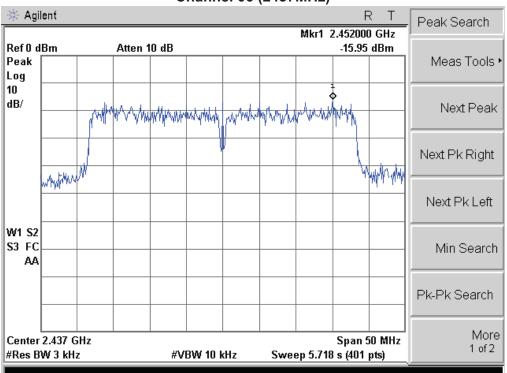
🔆 Agi	lent								F		Peak Search
Ref O d	IBm		Atten 1	0 dB			I	Mkr1 2.	4670000 12.04-		1
Peak Log							=	-	-12.04		Meas Tools
10 dB/		M	WWWW	WWW	WWW	MMM	ww	WWW	Wry I		Next Peak
	MANA	N							hy.	Windy	Next Pk Right
											Next Pk Left
M1 S2 S3 FC AA											Min Search
											Pk-Pk Search
	2.462 GH W 3 kHz	z		#VI	BW 10 I	cHz	Swee	ep 2.859		25 MHz pts)	More 1 of 2

Product	:	ZK-7601						
Test Item	:	ower Spectral Density						
Test Mode	Test Mode : Mode 4: Transmit by 802.11n (40MHz)							

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
03	2422	-16.72	8	Pass
06	2437	-15.95	8	Pass
09	2452	-17.00	8	Pass



### Channel 03 (2422MHz)



Channel 06 (2437MHz)

Channel 09 (2452MHz)

🔆 Agil	ent								F	<u> </u>	Peak Search
								Mkr1 2	2.460750		
Ref O d Peak _og	Bm		Atten 1						-17	dBm	Meas Tools
10 18/		MA	urwytymu	all Marily	Murry W	C.Million	wr.hylui	p-hahyny	ndhy		Next Peak
	63.00									WAY.M.	Next Pk Right
	wWw.th									1.1.1.1.10.14	Next Pk Left
N1 S2 53 FC AA											Min Search
											Pk-Pk Search
	2.452 GI W 3 kHz			 #VI	BW 10 I	cHz	Swee	ep 5.718	Span 5 s (401		More 1 of 2

### 4.7. Spurious RF Conducted Emission

#### TEST CONFIGURATION



#### TEST PROCEDURE

The EUT was tested according to KDB558074 D01 v03r01 for compliance to FCC 47CFR 15.247 requirements.

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2009 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBM= 300KHz to measure the peak field strength, and measure frequeny range from 30MHz to 26.5GHz.

#### LIMIT

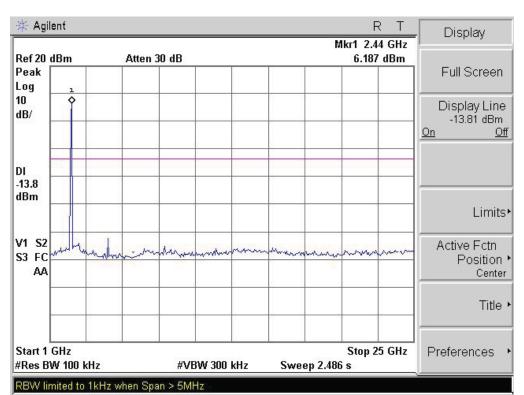
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

#### TEST RESULTS

Product	:	ZK-7601
Test Item	:	RF Antenna Conducted Spurious
Test Mode		Mode 1: Transmit by 802.11b

🔆 Agilent			R T	Peak Search
Ref 20 dBm Peak Log	Atten 30 dB		-44.76 dBm	Meas Tools
10 18/				Next Peak
DI 13.8				Next Pk Right
JBm				Next Pk Left
11 S2 53 FC AA	home and the second	mantenana	man and a part of the	Min Search
				Pk-Pk Search
Start 30 MHz Res BW 100 kHz	: #VBW:	300 kHz Sweep	Stop 1 GHz 100.5 ms	More 1 of 2

#### Channel 01 (2412MHz)





🔆 Agilent					Peak Search
Ref 20 dBm	Atten 30 dB		Mkr1 75 44.:	i0.2 MHz 51 dBm	
Peak Log 10					Meas Tools
dB/					Next Peak
DI					Next Pk Right
					Next Pk Left
M1 S2 S3 FC AA	mannan	man	A man when the second	manzen	Min Search
					Pk-Pk Search
Start 30 MHz #Res BW 100 kH:	z #VB\	W 300 kHz 3	Sto Sweep 100.5 ms	op 1 GHz	More 1 of 2

Agiler	nt				R T	_ Display
ef 20 dl	Bm	Atten 30	dB	Mk	r1 2.44 GHz 5.907 dBm	
eak og	~					Full Screen
0 B/	\$					Display Line - 14.09 dBm <u>On C</u>
l  4.1 Bm						
1 S2 3 FC AA	m	hanne	man	 	man	Active Fctn 

🔆 Agilent		R T Peak Search
D (20 ID	A	Mkr1 842.4 MHz
Ref 20 dBm Peak Log	Atten 30 dB	43.62 dBm Meas Tools
10 dB/		Next Peak
DI		Next Pk Right
dBm		Next Pk Left
M1 S2 S3 FC AA		Min Search
		Pk-Pk Search
Start 30 MHz #Res BW 100 kH	2 #VBW 300 kHz Sv	Stop 1 GHz More veep 100.5 ms

## Channel 11 (2462MHz)

🔆 Agil	ent								F	<u>२                                    </u>	Display
								MI		iO GHz	
Ref 20 Peak Log	dBm		Atten 3	UdB					5.98	9 dBm	Full Screen
10 dB/	Ŷ										Display Line -14.01 dBm <u>On Of</u>
DI -14.0 dBm											
											Limits
V1 S2 S3 FC AA	ma	mlu		m		vhanna	what	n.m.h	www	una son	Active Fctn Position Center
											Title
Start 1 #Res B	GHz W 100 kH	7		#VB\	N 300 ki	Hz	Sweep			25 GHz	Preferences

V1	.0

Product	:	ZK-7601
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 2: Transmit by 802.11g

	Channe	01 (2412IVIHZ)	
🔆 Agilent		R T	Peak Search
Ref 20 dBm Peak Log 10	Atten 30 dB	Mkr1 660.5 MHz _43.86 dBm	Meas Tools
dB/			Next Peak
DI			Next Pk Right
		1	Next Pk Left
M1 S2 S3 FC AA	madenter	utuntuntuntun turuntun t	Min Search
			Pk-Pk Search
Start 30 MHz #Res BW 100 kH	z #VBW 300 k	Stop 1 GHz Iz Sweep 100.5 ms	More 1 of 2

## Channel 01 (2412MHz)

🔆 Agil	ent								F		, Display
Ref 20	dBm		Atten 3	0 dB				M	kr1 2.4 3.197	4 GHz ′dBm	, 
Deak Log											Full Screer
10 18/	1 \$										Display Lin -16.81 dBm <u>On Q</u>
)  16.8  Bm											
											Limi
1 S2 3 FC AA	m	mluni	man apple to	hanna	hour	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	wet when	hannan	vyr-man	ana-w	Active Fctn Positio Cent
	<u> </u>										Title
itart 1	GHz W 100 ki				300 300			ep 2.486	Stop 2	5 GHz	Preferences

🔆 Agi	lent				RT	Peak Search
Ref 20	dD	044- u 20 dB		1	Mkr1 721.1 MHz	
Peak Log		Atten 30 dB			-44.64 dBm	Meas Tools
10 dB/						Next Peak
DI -17.2						Next Pk Right
dBm						Next Pk Left
M1 S2 S3 FC AA	man and a second			herrowski	mummera	Min Search
						Pk-Pk Search
Start 3 #Res B	D MHz W 100 kHz	#vi	3W 300 kHz	Sweep 100.	Stop 1 GHz 5 ms	Mon 1 of 2

🔆 Agi	lent									ς т	Display
Ref 20 Peak	dBm		Atten 3	30 dB				M	lkr1 2.4 2.809	4 GHz dBm	, Full Screen
Log 10 dB/	1 ¢										Display Line -17.19 dBm <u>On O</u>
DI -17.2 dBm											
											Limits
V1 S2 S3 FC AA		hand	minunda		mudu		manud	-markan	and the second s	~~~~	Active Fctn Position Cente
	-				8						Title
Start 1 #Res B		kHz		//////////////////////////////////////	3W 300	kHz	Swee	ep 2.486		5 GHz	Preferences

🔆 Agilent					R T	Peak Search
Ref 20 dBm Peak Log	Atten	30 dB			752.7 MHz 43.98 dBm	Meas Tools
10 dB/						Next Peak
DI -16.9						Next Pk Right
dBm						Next Pk Left
M1 S2 S3 FC AA	manneman		www.nhime	moundan	- Margan in the second	Min Search
_						Pk-Pk Search
Start 30 MHz #Res BW 100	kHz 0 1kHz when Sp	#VBW 30	0 kHz Swe	ep 100.5 ms	Stop 1 GHz	More 1 of 2

## Channel 11 (2462MHz)

🔆 Agi	lent								F	R T	Display
								M	lkr1 2.5		Diopidy
Ref 20 Peak Log	dBm		Atten	30 dB					3.059	dBm	Full Screen
10 dB/	1									-	Display Line -16.94 dBm <u>On Of</u> i
DI -16.9 dBm											
		E									Limits
V1 S2 S3 FC AA	mh	uli	mm	mmu	www.	- market	www.com	ministered	-www.w	mad	Active Fctn Position Center
										-	Title
Start 1 #Res B	GHz GHz W 100 kH	z		#VE	3W 300	kHz	Swee	ep 2.486	Stop 2 is	5 GHz	Preferences

Product	:	ZK-7601
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

			Gna	nnei 01 (z	.41211172)		
🔆 Agi	ilent					R T	Peak Search
Ref 20 Peak Log	dBm	Atten 3	0 dB			kr1 350.1 MHz _44.3 dBm	, Meas Tools
10 dB/							Next Peak
DI -17.3 dBm							Next Pk Right
uom							Next Pk Left
M1 S2 S3 FC AA	and the second		and and and and	www.	mandan para	hourse and the second s	Min Search
							Pk-Pk Search
Start 3 #Res B	0 MHz SW 100 kHz		#VBW 3	300 kHz \$	Sweep 100.5	Stop 1 GHz ms	More 1 of 2

## Channel 01 (2412MHz)

Agil	lent			R T	Display
f 20 (	dBm	Atten 30 dB		Mkr1 2.44 GHz 2.702 dBm	
ak g					Full Scree
/	ı ¢				Display Lin -17.30 dBr <u>On</u>
.3 m					
					Limit
S2 FC AA	why	Invienne	warmon warmon the	 winner war	Active Fctn Position Cent
					Title
art 1	GHz			Stop 25 GHz	Preferences

🔆 Agilent			RT	Peak Search
D (20 ID	A		Mkr1 825.4 MHz	
Ref 20 dBm Peak Log	Atten 30 dB		_43.65 dBm	Meas Tools
10 dB/				- Next Peak
DI				Next Pk Right
dBm			1	Next Pk Left
M1 S2 S3 FC AA	-management	have a second and a second and a second and a second and a second a second a second a second a second a second	where and a second and a second	Min Search
				Pk-Pk Search
Start 30 MHz #Res BW 100 kH:	z #VBW	300 kHz Swee	Stop 1 GHz 2005 ms	More 1 of 2

🔆 Agil	ent					RT	Display
Ref 20 (	dBm	Atten 30	dB			2.44 GHz 11 dBm	
Peak Log							Full Screen
10 dB/	1						Display Line -17.19 dBm <u>On O</u>
DI -17.2 dBm							
							Limits
V1 S2 S3 FC AA	mh	hanner	man	www.sue	monumen	mm	Active Fctn Position Cente
							Title
 Start 1 #Res B <sup>1</sup>	GHz W 100 kHz		#VBW 300 k	Hz Sw	Stop Stop 2.486 s	o 25 GHz	Preferences

🔆 Agilent			R 1 808.4 MI	Peak Search
Ref 20 dBm Peak _og	Atten 30 dB		-44.3 dBn	Meas Tools
10 1B/				Next Peak
01 17.4 JBm				Next Pk Right
		3		Next Pk Left
M1 S2 S3 FC AA	-www.whenever.com	un de la come de	and have a construction of the construction of	Min Search
-				Pk-Pk Search
Start 30 MHz Res BW 100 kH	z #VE	W 300 kHz	Stop 1 G Sweep 100.5 ms	Hz More 1 of 2

## Channel 11 (2462MHz)

🔆 Agi	lent								F		Display
Ref 20 Peak	dBm		Atten 3	30 dB				M	lkr1 2.5 2.641	0 GHz dBm	, Full Screen
Log 10 dB/	1										Display Line -17.36 dBm <u>On Off</u>
DI -17.4 dBm											Limits
V1 S2 S3 FC AA	Land 1	numln	nin	atuda	an all a second	mm	whenham	mm	- 	man	Active Fctn Position Center
										2	Title
Start 1 #Res B		kHz		 #VE	3W 300	kHz	Swee	ep 2.486	Stop 2 is	5 GHz	Preferences

V1	.0	

Product	:	ZK-7601
Test Item	•••	RF Antenna Conducted Spurious
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

	Channel U.	3 (2422IVIHZ)	
₩ Agilent		R T	Peak Search
Ref 20 dBm Peak Log 10	Atten 30 dB	Mkr1 864.2 MHz -44.61 dBm	Meas Tools •
dB/			Next Peak
DI -19.3			Next Pk Right
dBm			Next Pk Left
M1 S2 S3 FC AA		and the second sec	Min Search
			Pk-Pk Search
Start 30 MHz #Res BW 100 kH	z #VBW 300 kHz	Stop 1 GHz Sweep 100.5 ms	More 1 of 2

### Channel 03 (2422MHz)

🔆 Agile	ent				R	T Display
Ref 20 a	lBm	Atten 30 dB			Mkr1 2.38 G 0.674 dB	Hz
Peak Log						Full Screen
10 dB/	1 \$					Display Line -19.33 dBm <u>On</u> <u>O</u>
DI -19.3 dBm						_
						Limit
V1 S2 S3 FC AA	milliond	man	mannamanan	mmm	manin	Active Fctn Position Cente
-						Title
 Start 1 ( #Rec B)	GHz V 100 kHz		'BW 300 kHz	Sweep 2.4	Stop 25 G	Hz Preferences

🔆 Agilent						R T Mkr1 655.7 MHz	- Peak Search
Ref 20 dBn	dBm Atten 30 dB						
Peak Log 10							Meas Tools
dB/							Next Peak
DI							Next Pk Right
							Next Pk Left
M1 S2 S3 FC AA	ununun	man		n na mara	-		Min Search
							Pk-Pk Search
Start 30 MI #Res BW 1			#VBW 300	) kHz S	weep 100	Stop 1 GHz	Mor 1 of 2

🔆 Agi	lent				RT	_ Display
				1	Mkr1 2.44 GHz	
Ref 20 Peak Log	dBm	Atten 30 dB			0.431 dBm	Full Screen
10 dB/	1 \$					Display Line -19.57 dBm <u>On O</u>
DI -19.6 dBm						Limits
V1 S2 S3 FC AA	million	Lunan	minahaa	mannen	man	Active Fctn Position Cente
	7					Title
Start 1 #Res B	GHz W 100 kHz		/BW 300 kHz	Sweep 2.48	Stop 25 GHz 6 s	Preferences

🔆 Agile	ent				RT	Peak Search
Ref 20 d	lBm	Atten 30 dB			Mkr1 592.6 MHz -43.79 dBm	
Peak Log						Meas Tools
10 dB/						Next Peak
DI -19.7 dBm						Next Pk Right
abm						Next Pk Left
M1 S2 S3 FC AA	-www.www		an marken was		and and an an an an	Min Search
-						Pk-Pk Search
 Start 30 #Res BV	MHz V 100 kHz		3W 300 kHz	Sweep 100.	Stop 1 GHz .5 ms	More 1 of 2

## Channel 09 (2452MHz)

🔆 Agi	lent						RT	Display
2.00						Mkr1 2.		) Diopidy
Ref 20 Peak Log	dBm	Atten 3	30 dB			0.39	1 dBm	Full Screen
10 dB/								Display Line -19.71 dBm <u>On Off</u>
DI -19.7 dBm								
								Limits
V1 S2 S3 FC AA	waltum	harm	man	n market and the second	mohnam	unitan	h.m.	Active Fctn Position Center
								Title
Start 1 #Res B	GHz GHz		#VBW	300 kHz	Sweep		25 GHz	Preferences

## 4.8. Antenna Requirement

#### STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

#### Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

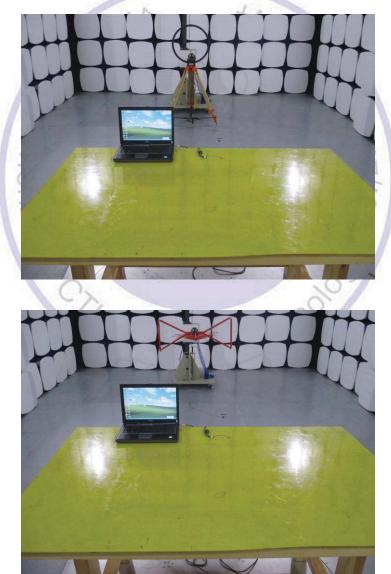
#### ANTENNA CONNECTED CONSTRUCTION

The directional gains of antenna used for transmitting is 0.5dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.



# 5. Test Setup Photos of the EUT



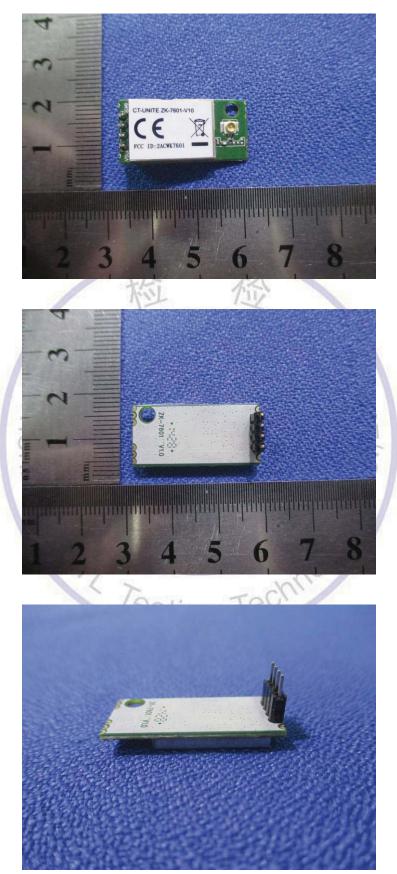






# 6. External and Internal Photos of the EUT

External Photos of EUT





## Internal Photos of EUT

